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PROGRESS IN BRONCHOLOGY

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The physician who entered the field of medicine twenty-five years ago either was unfamiliar with bronchoscopy or associated it only with removal of foreign bodies which had become wedged in the air passages. These accidents were considered as rare medical curiosities, and as a result few physicians actually witnessed a bronchoscopic procedure. Now, a quarter of a century later, bronchology is a recognized specialty in medicine, and practically every large hospital has a well organized bronchoscopic clinic.

Originally designed and perfected for the removal of aspirated foreign bodies, bronchoscopy now is employed as an aid either in diagnosis or in treatment of practically all bronchopulmonary diseases associated with bronchial obstruction or with an increase of bronchial secretions. The scope of its uses has exceeded the original concepts so that its relation to certain fields of medicine and surgery can be considered as on a par with that of roentgenology. While about 25 per cent of the bronchoscopies performed in the few bronchoscopic clinics in existence a quarter of a century ago were done to remove foreign bodies from the air passages, now in the many hundreds of clinics established over the entire United States, as well as in foreign countries, less than 2 per cent of all bronchoscopic procedures are performed for this purpose. The occurrence of foreign body accidents has not diminished, but the number of cases is overshadowed by the enormous group of bronchopulmonary diseases requiring bronchoscopic study and treatment.

No chapter of modern medicine is more interesting or more conspicuous than that contributed by bronchology concerning the symptoms, the pathologic aspects, the diagnosis, the prognosis and the treatment of foreign bodies in the air passages. In the days of Samuel D. Gross, the mortality rate of surgical attempts to remove foreign bodies from the air passages was over 27 per cent. Failures were common, and in these pulmonary suppuration with chronic invalidism was the usual outcome. In our larger bronchoscopic clinics, where there are available records of many hundreds of cases of foreign bodies in the air passages, the mortality rate is less than 1 per cent, and failures are rare.

Bronchology has added enormously to knowledge of the function of the tracheobronchial tree. It has contributed information concerning obstructive emphysema and atelectasis and the interpretation of physical signs. In the diagnosis of bronchopulmonary disease it has become a valuable aid to the internist. It has aided materially in the progress made in the fields of thoracic surgery and anesthesiology. In dealing with the problems of respiratory obstruction, the anesthesiologist has become familiar with the methods of the bronchologist. He has utilized to a great extent the equipment commonly employed in the field of bronchology.

A detailed account of all the contributions made to medicine and surgery in the field of bronchology, as well as of the numerous contributors, would exceed the allotted time and space of this presentation. Reference therefore will be made to the more recent advances and to the present status of bronchology in diagnosis and treatment.

BRONCHOGENIC CARCINOMA

Until two decades ago a diagnosis of carcinoma of the bronchus usually was made by the pathologist in the autopsy room. This procedure was slowly replaced by bronchoscopic biopsy, with a positive diagnosis of the lesion in the living patient, and as a result opportunity was given thoracic surgeons to evolve a technic for the successful removal of the entire lung for carcinoma. The increasing interest taken in carcinoma by the general practitioner and the internist has resulted in the accumulation of clinical reports aggregating many hundreds of cases, with bronchoscopic biopsy yielding a positive diagnosis in from 60 to 80 per cent of the cases and bronchoscopic anatomicopathologic findings warranting a diagnosis of carcinoma in an additional 10 to 15 per cent of cases.

In evaluating the results of surgical treatment of bronchogenic carcinoma it soon became apparent, however, that positive bronchoscopic diagnoses, although made during life, gave too few opportunities for successful surgical extirpation of the tumor. It also became evident that, in order to treat this disease successfully, it would be necessary to make the diagnosis earlier, **before larger bronchi became obstructed, and to have the search for lesions located beyond the visual field of the bronchologist brought to an earlier conclusion diagnostically.**

A telescopic lens system employed as a bronchoscopic obturator for inspection of lesions "around the corner"

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Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

in the bronchi of the upper lobe was added to the armamentarium, but it provided little diagnostic assistance.

Recently cytologic studies of bronchial secretions have shown that "cancer cells" are present in the bronchi in cases of bronchogenic carcinoma. With the aid of appropriate collection tubes and aspirators, secretions may be secured bronchoscopically from the site of the suspected carcinoma, and, with special staining methods, the cells may be recognized as being neoplastic in character. It has been conclusively demonstrated in at least an additional 20 to 25 per cent of cases that carcinoma can be diagnosed positively in those whose lesions are beyond bronchoscopic vision. It also has been shown that complete surgical removal can be carried out in a higher percentage of cases in which carcinoma occurs in bronchi beyond the field of bronchoscopic vision than of the group in which the lesions are diagnosed by bronchoscopic biopsy. If this method of diagnosis could be utilized with all patients whose roentgenograms present suspicious shadows and if routine roentgenographic surveys were made of the chests of all adults who are presumably well, the outlook of the patient with bronchogenic carcinoma would be hopeful. It is a common experience to find that definite diagnostic procedures have been delayed until the disease is advanced. That is why bronchogenic carcinoma has been recognized late and why it is suitable for surgical treatment in relatively few cases.

Attempts have been made to treat bronchogenic carcinoma by endobronchial implantation of radon or by application of radium element. These have been attended by little success.

BENIGN TUMORS

While the incidence of carcinoma of a bronchus is about ten times greater than that of benign bronchial tumor, the occurrence of a tumor of the latter type must be considered in every case of bronchial obstruction. Adenoma of the bronchus, a glandular tumor, is the most common form of relatively benign growth and often is observed in young adults. Although the earlier bronchoscopic biopsies of such tumors were reported as revealing adenocarcinoma, further studies of these tumors have shown that they are definite neoplastic entities. Many patients with endobronchial benign tumors have been successfully treated by instrumental removal and diathermy carried out bronchoscopically. Adenoma often occurs as an endobronchial or an extrabronchial tumor. This usually can be demonstrated by body section roentgenography. In addition, adenoma may undergo cancerous changes. As a result, surgical extirpation must be considered in treatment.

PULMONARY ABSCESS

In the earlier days, before external surgical drainage of pulmonary abscess or lobectomy became a relatively safe procedure, bronchoscopic aspiration was an accepted therapeutic procedure in the medical management of pulmonary abscess, and many lives were saved by this means. Today, with prophylactic measures, sulfonamide compounds and antibiotic drugs, as well as surgical treatment, the trend has been away from bronchoscopy, which now has little place in the medical treatment. It still remains a valuable diagnostic aid, however, in cases of suspected bronchial obstruction complicated by pulmonary abscess.

BRONCHIECTASIS

For many years prior to the development of a safe surgical plan of therapy, bronchoscopy was employed as a palliative form of treatment for bronchiectasis. Now surgical removal of the involved pulmonary tissue is a safe procedure and should be carried out whenever possible. Bronchoscopy still has a definite place in the medical management of the patients not suitable for surgical treatment. It also is of value in the medical preoperative and postoperative care of the surgical group.

BRONCHIAL ASTHMA

While this condition commonly is a problem for the internist and the allergist, the assistance of the bronchologist often is required in both diagnosis and treatment. The role of the bronchologist therefore includes investigation of the tracheobronchial tree to rule out certain conditions that simulate asthma and to remove secretions from the air passages. Patients with foreign bodies in the air passages, even in the esophagus, not infrequently have been studied carefully from an allergic standpoint, and only later it is discovered that there was present a foreign body. One of the symptoms which commonly misleads to a provisional diagnosis of asthma is wheezing respiration. The mechanism of its production and its clinical significance often have been discussed by the bronchologist. Wheezing also is commonly a symptom of partial obstruction of a bronchus, and it is in this case that bronchoscopy is of value as a diagnostic aid and often as a therapeutic measure.

Studies of fatal cases of status asthmaticus have shown that one of the most common and important causes of death is the blocking of the larger air passages by thick, tenacious secretion. Failure to secure a satisfactory response by the accepted methods of medical treatment in cases of marked dyspnea due to accumulated secretions necessitates that these be mechanically removed by bronchoscopic aspiration. Spectacular results have been secured at times in moribund patients. It is obvious, of course, that in cases of this type little can be hoped for unless the life-saving measures are employed by one well qualified; for among bronchologists it is admitted that two contraindications to bronchoscopy are an inadequate armamentarium and a poorly trained bronchologist.

POSTOPERATIVE PULMONARY ATELECTASIS

Bronchoscopic investigation of so-called postoperative or atypical pneumonia revealed that in many cases the condition was not true pneumonia but the result of a blocking of bronchi by thick, tenacious secretions. Postoperative pulmonary atelectasis now is recognized as a definite clinical entity, and with this recognition appropriate treatment has reduced its more serious complications and sequelae to a minimum. In addition, preventive measures are carried out, so that it is of uncommon occurrence. Bronchoscopy is utilized now only in cases in which postoperative atelectasis does not respond to the more simple plans of therapy and mechanical aspiration of secretions must be resorted to. Bronchoscopic or catheteral aspiration also has a definite place in the medical management of all postoperative or post-traumatic conditions in which for various reasons the secretions cannot be coughed up from the

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air passages. They are well recognized procedures which have contributed greatly in decreasing morbidity and mortality.

TUBERCULOUS TRACHEOBRONCHITIS

Two decades ago it was axiomatic that bronchoscopy was definitely contraindicated in pulmonary tuberculosis. With increasing numbers of patients being subjected to diagnostic bronchoscopy because of obscure pulmonary diseases, many of those diseases were diagnosed as tuberculous, and as a result the frequent occurrence of tuberculous tracheobronchitis was discovered. It was noted further that no untoward effects resulted from bronchoscopy in the tuberculous patients. As collapse therapy, notably thoracoplasty, was increasingly employed for tuberculosis, with unfavorable postoperative results, a new impetus was given to bronchoscopy. It became apparent that the presence of bronchial obstruction interfered with collapse therapy, and preoperative bronchoscopy soon became a routine procedure. Statistical reports indicate that routine diagnostic bronchoscopic examination of all tuberculous patients admitted for treatment will show an incidence of demonstrable tuberculous tracheobronchitis of about 10 per cent. In tuberculous patients suspected of having tracheobronchial lesions the incidence varies from 25 to 30 per cent.

Since the acquisition of knowledge of this condition is recent, there still is some difference of opinion concerning the value of endobronchial treatment of these lesions. Bronchoscopic cauterization, preferably employing silver nitrate, is most often done. The most important bronchoscopic contribution, however, is the recognition of tracheobronchial lesions which, if unrecognized or uncorrected, would seriously impair the benefits of collapse therapy.

Many phthisiologists now have listed innumerable indications for employing bronchoscopy in the management of patients known to be tuberculous, and the time has arrived when but few contraindications to its being used in tuberculosis remain.

Direct inspection is always of distinct value in diagnosis. In the study of the tracheobronchial tree it must be remembered that the entire lung is not open to inspection. Bronchoscopic inspection should be considered as only one of a number of diagnostic measures and is supplementary to complete clinical and roentgenographic studies. It therefore is indicated as a diagnostic procedure in cases of pulmonary disease in which there is a diagnostic question remaining after physical examination and roentgenologic and laboratory investigations have been carried out. This includes the large group of cases of obscure chronic cough, hemoptysis and wheezing respiration as well as unexplained roentgen findings and physical signs. In any case of pulmonary disease, when there is doubt whether bronchoscopy should or should not be done, it should be done, provided there are no definite contraindications.

Positive findings are of the utmost value; negative findings usually can be considered of little importance but at times may be very important. Bronchoscopy still offers the only method of treatment of foreign bodies lodged in the air passages. It is a valuable aid in the diagnosis of obscure bronchopulmonary signs and symptoms, and its outstanding contributions at the present time lie in this field.

1530 Locust Street.

ABSTRACT OF DISCUSSION

DR. HENRY BOYLAN ORTON, Newark, N. J.: It is indeed a privilege to discuss Dr. Clerf's paper on progress in bronchology. There is little that can be added except to reiterate that which has already been said. As Dr. Clerf stated, bronchoscopy was originally for the removal of foreign bodies—and in the days of Samuel Gross there were two types of foreign bodies, as he classified them: The patients who had swallowed or inhaled a foreign body vomited or coughed it up and got well, and the others went to the autopsy table. As brought out in Dr. Clerf's presentation, the scope of its uses has exceeded the original limitations, and I agree that its relation to certain fields of medicine and surgery should be considered as on a par with that of roentgenology. In the past year I have used the bronchoscope in the treatment of bulbar lesions in 2 patients with poliomyelitis, even when they were in the iron lung, to remove secretions which the patients were unable to cough up. One important part of Dr. Clerf's paper is that relating to the cytologic study of bronchial secretions. This examination should be done in all hospitals, and all hospital laboratories should be equipped to be able to do this work, thereby diagnosing conditions of carcinoma of the lung earlier and giving the patient a better chance for surgical procedure. Too much of this work on the cell content of secretions is left to technicians or other persons in the hospital who are not thoroughly familiar with the technic. This should be remedied. Two important contraindications to bronchoscopy, as brought out in Dr. Clerf's paper, are an inadequate armamentarium and a poorly trained bronchologist.

DR. H. J. MOERSCH, Rochester, Minn.: Dr. Clerf, in his usual able manner, has given an excellent presentation of the development of bronchoscopy of the past twenty-five years. He failed to mention that twenty-five years ago the bronchoscopist needed to possess, in addition to certain skill for the performance of bronchoscopy, decided eloquence, to enable him to convince his colleagues that the procedure should be carried out in cases other than those of dire necessity. Today the picture is changed, and bronchoscopy is looked on as a necessary adjunct in any well developed section on thoracic diseases and as an essential procedure in any large general hospital. Although the removal of aspirated foreign bodies still remains one of the important functions of bronchoscopy, this is not the main function of bronchoscopy at present. Bronchoscopy is of greater value and importance in the diagnosis of pulmonary disease. Such conditions as hemoptysis of unexplained origin, cough, expectoration, wheeze and unresolved pulmonary inflammatory changes always indicate bronchoscopy. The value of bronchoscopy in the diagnosis of benign and malignant tumors has been well emphasized by Dr. Clerf. However, if improvement is to be made in the diagnosis and treatment of pulmonary carcinoma, early diagnosis becomes a matter of greatest importance. Bronchoscopy enables the physician to diagnose carcinoma in approximately 65 per cent of cases. Too frequently, however, it is a late, rather than early, diagnosis. Dr. Clerf and his associates have made a distinct contribution to the solution of the problem of earlier diagnosis of carcinoma of the lung by emphasizing the importance and value of the cytologic study of secretions of the bronchial tree, which may reveal malignant cells. By this method it is possible to increase one's diagnostic acumen by perhaps 20 to 30 per cent. During the past two decades a great change has taken place in the role played by bronchoscopy in the study of tuberculosis. Two decades ago the examination was undertaken with much fear and trepidation in cases of tuberculosis, but today it is looked on as a routine procedure in the study of this disease. It will undoubtedly become of even greater importance with the advances that have been made in thoracic surgery as applied to the treatment of tuberculosis, and also with the introduction of streptomycin. Dr. Clerf has called attention to the value of bronchoscopy in the study of postoperative atelectasis and has said that bronchoscopy is of special value when this condition does not respond to other forms of treatment. I would even go a little farther and say that it should be employed as a preventive of this condition. Undoubtedly, bronchoscopy will make many more advances in the future, such as that in the study of pulmonary function.

DR. EELCO HUIZINGA, Holland: I wish to congratulate Dr. Clerf on his excellent paper. His message concerning examination of the secretions is important, and that proves that great improvements in endoscopy still come from Philadelphia. I should like to mention the fact that in some of these cases in which one cannot find the lesion by looking through the bronchoscope, it is possible to do a biopsy directed by a bronchogram.

DR. ANDRE SOULAS, Paris, France: Bronchologic advances made during the past decade are important in the field of tuberculosis and neoplasm of the bronchus. But these advances are nowhere near as important as the progress which was made during the period between 1929 and 1935. It was during that first period that Chevalier Jackson and his school discovered and specified the syndrome of the obstruction of the bronchus. The discovery was important, with all its consequences on pulmonary pathology, this pulmonary pathology which in 1920 had not yet been defined. The period between 1920 and 1930 marks the greatest progress of bronchology, since the syndrome of obstruction of the bronchus is, and will always be, at the base of bronchology. However, I think—and it has been the object of my researches for the last ten years—that it is necessary to emphasize the pathologic aspect of the wall of the principal bronchial system. This parietal pathology, as well as the relationship between the pleural and the bronchoalveolar region and the bronchial system, must be and will be the object of most interesting researches. For all these reasons, in the future the laryngologist will be the best bronchoscopist on the one and only condition that he is familiar with the physiology and the pathology of the whole thorax, in particular, the respiratory tract.

DR. IRVING WILSON VOORHEES, New York: I have had an opportunity to see at the Manhattan Eye, Ear and Throat Hospital and also at the Medical Center (Presbyterian Hospital) men at work in this great specialty which has grown so rapidly. For many years I have had the privilege to know and observe Jackson in Philadelphia and many others who have developed direct tube work. As a student and intern, I often heard of a patient "drowning in his own secretion." One seldom hears that expression these days, although it probably does occur. Dr. Clerf and Dr. Orton have both well brought out that it is a charge against every medical man to allow such a thing to happen. It occurs to me that every anesthetist should be basically trained in bronchoscopy, because some of the so-called "deaths on the table" due to status lymphaticus are not at all due to status lymphaticus, but to failure of respiration because of some obstruction—secretions, foreign body or what not. Years ago at the Manhattan, we admitted two children, brother and sister, for tonsillectomy. On my way out of the hospital, I was called back to the operating room. The little boy was back on the table, and an intern was struggling to get him to breathe. I did a tracheotomy—I was not a bronchoscopist at that time—but the child never breathed through the tube. At autopsy we found grapefruit seeds at the bifurcation of the trachea. A visitor to the ward, against all orders, had given this child grapefruit! The pulp and seed had been swallowed, regurgitated after anesthesia, then inhaled. Asphyxia might possibly have been prevented if a bronchoscopist had been there. At least the boy would have had a chance. So I think we might well recommend that all anesthetists be equipped to do an emergency bronchoscopy. In hospitals where nurse anesthetists are employed, they might also be trained to use a tube and suction until a staff bronchoscopist can be called.

United States Libraries.—The Department of State maintains U. S. Libraries in three of the other American republics as part of the program of the Interdepartmental Committee on Scientific and Cultural Cooperation: the Biblioteca Benjamin Franklin at Mexico City, the Biblioteca Americana de Nicaragua at Managua, and the Biblioteca Artigas-Washington at Montevideo. The libraries are typical American public libraries, staffed with professional American librarians and operated in accordance with standard American library practice. They provide their users with complete and accurate information about the United States, whether of a general, technical or scientific nature.—Report of the Interdepartmental Committee on Scientific and Cultural Cooperation, July 1946 to June 1947, U. S. Department of State.

STATISTICAL STUDY OF LIFE CYCLE OF 1,154 CASES OF DUODENAL ULCER

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Attention has frequently been focused on many phases of peptic ulcer. Although most factors in the production and life cycle of peptic ulcer are probably known, the complete picture of this condition has not been fully attained. The causes of peptic ulceration remain a debatable question. The role of acid still seems predominant in the etiology of this condition. The importance of psychogenic influences is fairly well established, but the exact mechanism in which it plays in the etiology of peptic ulcer is not definitely known. There is no doubt of its constant association in the majority of cases of duodenal ulcer.

The life cycle of duodenal ulcer usually follows a distinct clinical pattern. In many instances there are clinical variables. The clinical variations are due to the type, acute or chronic, healing, recurrences and complications. The majority of duodenal ulcers are of the chronic type. The symptoms often come on insidiously and are controlled by proper eating habits; thus the abnormal condition is not recognized by the patient.

Recent studies on vagotomy have stimulated considerable impetus on this condition and emphasized the neurogenic influences in peptic ulceration. The rising incidence of peptic ulcer has created more than a passing interest among clinicians; therefore it seemed important to determine whether this increase is actual or apparent. The greater incidence in recent years is based on the supposition that a larger number of cases of peptic ulcer were seen as a result of the war. This study, involving 7,300 gastrointestinal examinations, was made of an unselected group of ambulatory private patients of both sexes and all ages. In order to establish accurate data regarding the incidence, a ten year study was made of 1,154 cases of duodenal ulcer. These cases were divided into two five year periods: (1) prewar, 1937 to 1941, and (2) during and immediately after the war, 1942 to 1946. An appraisal of the data collected over a ten year period, with two separate psychologic periods, should give some statistical evidence regarding the cycle of peptic ulcer and materially add to our knowledge. An attempt was therefore made to establish what effect, if any, the emotional strain and overwork during the wartime had on peptic ulcers, not only on increase of the incidence, but on the recurrences and severity of the symptoms.

Of the 1,154 cases of duodenal ulcer, there were 480 cases during the prewar period and 674 cases observed during the war years. The purpose of this presentation is to determine (1) whether the incidence of duodenal ulcers increased during the war, (2) differences in the sex and age incidence in the two periods, (3) increase in prevalence of acute ulcers, (4) changes in the roentgen incidence of the ulcer niches and (5) increase in recurrences.

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastroenterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947

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INCIDENCE

It is the concensus that the incidence of duodenal ulcer increased in the civilian population during the war. One would naturally expect an increase in the incidence of ulcer, because of the tremendous amount of emotional strain, tension and overwork during the war. In a ten year study approximately 7,300 persons presenting digestive disturbances were examined, 3,500 in the first five year (prewar) period, 1937 to 1941, and 3,800 in the second five year (war) period, 1942 to 1946. During this ten year period 1,154 cases of duodenal ulcer were found, an incidence of 15.8 per cent. In the five prewar years there were 480 cases or 13.7 per cent. In the second five years, during and immediately following the war, there were 674 cases of duodenal ulceration, an incidence of 17.7 per cent. These statistics revealed a slight ascending trend in the incidence of duodenal ulcer during the war period.

SEX INCIDENCE

It was of interest to determine whether the sex incidence changed during the war. There was an actual increase in the number of females examined during this period; therefore there was an apparent

TABLE 1.—*Age and Sex*

Age When Examined, Years	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Under 10	1	1	0	0	1	1
10-19	3	13	5	3	8	16
20-29	66	103	11	17	77	120
30-39	125	190	18	36	143	226
40-49	111	139	25	30	136	169
50-59	59	85	15	16	74	101
60-69	25	24	9	5	34	29
70-79	4	10	2	1	6	11
80-89	1	0	0	1	1	1
Totals	395	565	85	109	480	674

increase in the number of females with peptic ulcer seen during the wartime.

Of the 480 persons with duodenal ulcer noted in the first five years, 395, or 82.3 per cent, were males and 85, or 17.7 per cent, were females. In the second five year group, there were 674 persons, of whom 565, or 83.8 per cent, were males and 109, or 16.2 per cent, were females. There was no statistical change in the sex incidence during the two five year periods.

AGE INCIDENCE

Table 1 shows the age and sex incidence. There is an impression that duodenal ulcer occurred in females at a later age than in males. A study of table 1 shows that a slight increase in females in the wartime group occurred in the third decade. However, there is a slight increased incidence of females in the prewar group in the sixth decade. These figures are statistically unimportant. In the whole series of cases, the age incidence in females did not differ from those of males.

AGE OF ONSET OF SYMPTOMS

The majority of persons with duodenal ulcer begin to have symptoms between the ages of 20 and 35. Often there is considerable lapse of time between the onset of the ulcer and the symptoms. A comparative study of the two groups of cases shown in table 2 does not reveal any statistical difference in the age of the patient and the first appearance of symptoms.

DURATION OF THE ULCER

The determination of the duration of the ulcer has always been a problem. In most cases it is difficult to establish the exact time of onset. Often there are

TABLE 2.—*Age of Onset of Symptoms*

Age, Years	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Under 10	2	2	0	0	2	2
10-15	4	5	2	3	6	8
16-20	29	52	9	6	38	58
21-25	103	117	15	19	118	136
26-30	102	122	10	21	112	143
31-35	61	99	12	19	73	118
36-40	38	55	15	18	53	73
41-45	22	53	9	10	31	63
46-50	18	31	3	6	21	37
51-55	7	15	5	2	12	17
56-60	6	7	2	2	8	9
61-65	1	4	2	1	3	5
66-70	0	1	0	0	0	1
71-75	1	1	0	1	1	2
76-80	1	0	0	0	1	0
81-85	0	1	1	1	1	2
Totals	395	565	85	109	480	674

few if any signs of the condition before symptoms develop that are severe enough to cause the patient to seek medical attention. Table 3 shows the duration of symptoms in 1,154 cases of duodenal ulcer. It will be noted that there was an increase in the number of cases of short duration in the second five year series.

In the majority of cases the duration of symptoms ranged from one to ten years, the predominant period

TABLE 3.—*Duration*

	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Less than 1 mo.	4	12	1	4	5	16
1 mo. to 3 mo.	20	38	5	7	25	45
3 mo. to 7 mo.	12	31	2	7	14	38
8 mo. to 11 mo.	1	12	1	1	2	13
1 yr. to 3 yr.	57	131	18	27	75	158
4 yr. to 7 yr.	86	129	23	24	109	153
8 yr. to 11 yr.	80	76	17	17	97	93
12 yr. to 15 yr.	53	59	8	12	61	71
16 yr. to 20 yr.	46	34	7	7	53	41
21 yr. to 26 yr.	23	26	0	2	23	28
27 yr. to 34 yr.	9	6	2	1	11	7
35 yr. to 40 yr.	4	11	1	0	5	11
Totals	395	565	85	109	480	674

being five years. It has often been assumed that symptoms in females are of shorter duration than in males. A comparative study of table 3 reveals no significant statistical change in the duration of symptoms in females as compared with males.

RECURRENCES

A significant feature of peptic ulceration is the frequent remissions and recurrences. It is important to note whether there were a greater number of recurrences during the war period than in the preceding five

years. The actual reasons for the recurrences frequently cannot be determined. In fact, often the digestive symptoms may not indicate the recurrence of the ulcer, but may result from spasm and irritability of the gastrointestinal tract or from other causes. The severity of symptoms following recurrences varied.

TABLE 4.—*Recurrences of Symptoms*

Number of Symptomatic Recurrences	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
0	51	144	11	21	62	165
1	135	247	29	51	164	298
2	85	90	18	21	103	111
3	69	49	15	9	84	58
4	24	21	7	5	31	26
5	10	4	2	2	12	6
6	12	6	3	0	15	6
7	1	0	0	0	1	0
8	6	2	0	0	6	2
9	0	0	0	0	0	0
10	2	1	0	0	2	1
11	0	0	0	0	0	0
12	0	1	0	0	0	1
Totals	395	565	85	109	480	674

Information on this topic is difficult to obtain because the disease characteristically shows a periodicity with remissions and recurrences. Nevertheless an attempt was made to determine the number of recurrences of symptoms occurring in the two five year periods. In this study only those cases revealing clearcut recurrences of the ulcer symptoms were considered. The number of symptomatic recurrences of ulcers are charted in table 4.

There were 227 cases of "acute" ulcers, 62 occurring in the first five year series and 165 in the second five year period. In the comparative study of this chart it will be noted that in addition to the increased number of acute ulcers observed during the war period, there was also a significant increase in the first recurrence of symptoms.

ACTIVITY OF THE ULCER

It is not always a simple matter to determine the status of activity of an ulcer, if one depends on the symptoms alone. It is necessary to visualize the ulcer niche or other signs in the duodenal bulb, such as hyperirritability, sensitiveness or tenderness on palpation, spasticity or edema and fragmentation. Besides these observations, the presence of occult blood in the stools is of paramount importance. In this study the activity of the ulcer was based on the roentgen observations. Of the 480 cases of duodenal ulcers observed during the prewar period, 230 were active; of the 674 cases in the war period, 400 were considered to be active. These statistics revealed an increase in the incidence of activity during the war period.

Ulcer Niche.—The demonstration of the niche defect in the duodenal bulb is pathognomonic of an active ulceration. It is necessary to reemphasize that the niche is not always observed, even in active ulcerations. In the 1,154 cases of duodenal ulcer, 418 showed a demonstrable niche defect. In the prewar five year period, of 480 cases there were 160 with ulcer niches. Of the 674 cases in the second five year period 258 revealed an ulcer niche defect. It was assumed that during the war period the incidence of activity of the ulcer as indicated by the demonstration of an ulcer niche had increased. A comparison of the statistics revealed a slight increase in the incidence of the ulcer niche defect in the second five year group.

The cases involving an ulcer niche were also studied according to sex, to determine whether niches are more common in females. It is noteworthy that there was a slight increase in the finding of an ulcer niche in females in the second five year group of cases. Table 5 shows the relative incidence in both series.

Hemorrhage.—Massive hematemesis is not very common in duodenal ulcer. In this study a comparison was made of the number of cases of hemorrhage occurring in each five year period. In the 1,154 cases of duodenal ulcer, there were 41 cases of massive hematemesis. In the 480 prewar cases, there were 15, while in the 674 cases of the second five year period it was noted in 26 cases. A comparative study of the two groups of cases revealed little statistical change. There appeared to be a slightly greater incidence of hematemesis in females during the war period.

Black Stools.—The presence of black stools associated with peptic ulcer usually indicates a bleeding ulcer. It was difficult to ascertain the true incidence of tarry stools, because many patients do not observe their stools at defecation. The cases charted in table 5 are those with the recognized passage of black stools. It was of interest to note whether the incidence of black stools increased during the war period. In the 480 prewar cases of duodenal ulcer black stools were observed in 21, while in the 674 cases of duodenal ulcer in the war and postwar period it was observed thirty times.

Obstruction.—Obstruction is encountered in duodenal ulcer as a result of secondary involvement of the pylorus, edema or stricture, or pronounced contracture of the duodenum caused by cicatricial changes. In the 1,154 cases, there were 23 cases of mechanical obstruction. In the prewar group, there were 10 cases; in the war-

TABLE 5.—*Signs and Symptoms*

	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Niches	135	198	25	60	160	258
Active ulcers	189	316	41	84	230	400
Pain	92	115	33	38	55	153
Pain—food relation	183	308	45	59	228	367
Vomiting	56	101	13	18	69	119
Hematemesis	13	16	2	10	15	26
Tarry stools (excluding tarry stools in hematemesis)	18	22	3	8	21	30
Diarrhea	22	48	6	11	28	59
Irritable, spastic colon	119	179	25	41	144	220
Pyloric obstruction	9	13	1	0	10	13

time cases it occurred thirteen times. It is obvious that there was not any increase in the number of cases of obstruction during the war period.

Perforations.—In the entire series of 1,154 cases of duodenal ulcer, only 10 postoperative cases were observed, occurring about equally in both five year periods.

Pain.—Pain in relation to food is one of the most characteristic symptoms of duodenal ulceration. Often there is pain without relation to food. However, pain

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is not always present in duodenal ulcers. Often there is only mild epigastric distress. In this series of 1,154 cases, 703 presented a history of pain; of these 595 gave the characteristic relation of pain and food.

Vomiting.—Vomiting in duodenal ulcers occurs in over 10 per cent of cases. It is often the first sign of acute onset of ulcer. It frequently occurs as a result of spasm or other pyloric involvement. Vomiting occurred in 186 of the 1,154 cases. In the 480 cases comprising the first five year period it occurred in 69; in the second five year group of 674 cases there were 119 cases of vomiting. A comparison of the two groups revealed a higher incidence of vomiting in the second five year period. This increase is probably due to the greater number of acute cases which occurred during the war.

Diarrhea and Irritable Colon.—Diarrhea, loose bowels or frequent bowel movements are commonly associated with duodenal ulcer. This condition is due to a hyperirritability and hypermotility of the entire gastrointestinal tract. In the 1,154 cases of duodenal ulcer, there were 87 cases of diarrhea, 28 cases occurring in the first five year and 59 in the second five year period. The higher incidence favored the second five year group.

An irritable colon is one of the most common roentgen findings associated with duodenal ulceration. Of the 1,154 cases, 364 cases of spastic or irritable colons were observed. In the prewar series there were 144 cases; during the war period 220 cases. A comparison of the two series slightly favored the war period.

SUMMARY

A comparative statistical study of duodenal ulceration in the civilian population was made of two five year periods, the prewar period from 1937 to 1941, and the period during the war, 1942 to 1946, to determine the effect of the war on duodenal ulceration. The incidence of duodenal ulcer among patients with digestive disturbances in a ten year period was found to be 16 per cent.

This study revealed the following information: 1. A rising trend in the incidence of duodenal ulcer during and immediately after the war amounted to about 4 per cent. 2. The comparison of the age and sex incidence in duodenal ulcers between the prewar and the war period showed no significant statistical change. 3. There was a slight increase in the incidence of cases of less than one year duration in the second five year period. 4. According to the objective roentgen findings for the determination of the activity of the ulcer, there seemed to be an increase in the percentage in the second five year study. 5. There was slight increase in the number of ulcer niches observed roentgenologically in the wartime cases. A slight increase was noted in the number of niches occurring in females in the war group. 6. There was a higher incidence of first recurrences and an increase in the incidence of "acute" ulcers during the war period. 7. In many instances the severity of symptoms seemed to be more pronounced during the war period, because of the increased number of acute ulcers. 8. The complications, obstruction and hemorrhage were not statistically different in the two groups of cases. There was a greater incidence of hematemesis in females during the war period.

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ONSET OF PEPTIC ULCER IN THE AGED

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In a previous report of 408 cases of bleeding peptic ulcer,[1] it was observed that 56 or 13.7 per cent were in patients over the age of 60 years. A review of the 56 cases revealed that in 25 of them the first symptoms of ulcer occurred after the fifth decade. A recent study of the gastric secretory response in the aged [2] showed that 12.7 per cent of persons over the age of 65 had hyperchlorhydria. In view of these observations, it was thought of interest to review a series of consecutive hospital admissions for peptic ulcer to determine the incidence of the onset of symptoms in patients over 60 years of age and the clinical course of peptic ulcer in this group.

CLINICAL STUDY

This study is based on a series of 1,800 successive admissions for peptic ulcer to two hospitals from 1941 to 1947. Three hundred and seventy-eight patients or 22.2 per cent were 60 years of age or older on admission. In 106 cases the first symptoms of ulcer occurred after the patients had reached the age of 60 years. After a careful scrutiny of the histories there was some doubt in 25 as to whether there had been any evidence or complaint referable to the ulcer prior to the age of 60. These cases were excluded from this study, leaving 81, or 4.5 per cent of 1,800 patients, in whom the history definitely indicated that the onset of the ulcer symptoms occurred after the fifth decade.

TABLE 1.—*Eighty-One Cases of Peptic Ulcer: Onset After Sixty Years of Age*

	Location of Ulcer and Sex Distribution						
	Gastric		Duodenal		Both Gastric and Duodenal		
Age, Years	M	F	M	F	M	F	Total
60-69	13	7	19	4	4	..	47
70-79	7	5	14	5	2	..	33
Over 80	..	..	1	..	..	..	1
Total	20	12	34	9	6	..	81

The age range of the patients in the 81 cases which form the basis of this study was from 60 to 81 years. Forty-seven patients were between 60 and 69 years, 33 were between 70 and 79 years and 1 patient was 81 years of age. Sixty patients were men and 21 were women. Thirty-two had a gastric ulcer (20 men and 12 women). Forty-three had a duodenal ulcer (34 men and 9 women). Six patients had both gastric and duodenal ulcers (table 1).

Clinical Aspects on Admission.—Pain was the chief complaint in 29 cases of uncomplicated ulcer; nonobstructive vomiting was present in 4 cases; 1 patient's

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1. Rafsky, H. A., and Weingarten, M.: Bleeding Peptic Ulcer: Clinical Appraisal of Various Methods of Treatment Based on a Series of Four Hundred and Eight Cases, J. A. M. A. **118**: 5-9 (Jan. 3) 1942.
2. Rafsky, H. A., and Weingarten, M.: Gastric Secretory Response in the Aged, Gastroenterology **8**: 348-352 (March) 1947.

only symptom was loss of weight. Three patients were admitted with evidence of hemorrhage and perforation. Twenty-eight patients were admitted for bleeding, 1 of whom also had a mild obstruction. Six patients had a perforated ulcer. In 2 additional cases, perforation of the ulcer occurred after the patient had been admitted for other diseases, 1 for coronary thrombosis and the other for urinary retention. Vomiting due to pyloric obstruction featured the onset in 8 patients. Forty-seven, or 58 per cent of the 81 cases, presented complications of ulcer on admission (table 2).

Gastric Analysis.—A gastric analysis employing an alcohol or Ewald test meal was performed in 40 cases. The results have been listed in table 3. It is of interest to note that hyperchlorhydria was found in 22 of the 40 patients who had a gastric analysis.

TABLE 2.—*Clinical Aspects in Eighty-One Cases of Peptic Ulcer: Onset After Sixty Years of Age*

Uncomplicated ulcer (34 cases)			
1. Pain	29		
2. Nonobstructive vomiting	4		
3. Loss of weight	1		
	—		34
Complications (47 cases)			
1. Hemorrhage	27		
(a) Hemorrhage with mild obstruction	1		
	—	28	
2. Perforation			
(a) On admission	6		
(1) Perforation with hemorrhage	3		
(b) After admission			
(1) For coronary thrombosis	1		
(2) For urinary retention	1		
	—	11	
3. Pyloric obstruction	8		
	—		47
Total			81*

* Forty-seven of 81 patients presented complications of ulcer.

TABLE 3.—*Gastric Analysis (Forty Cases) Alcohol or Ewald Test Meal*

	Type of Ulcer			
Gastric Acidity	Gastric	Duodenal	Both Gastric and Duodenal	Total
Hypoacidity, up to 25 units	4	2	1	7
Normal acidity, up to 50 units	7	4	..	11
Hyperacidity, over 50 units	8	13	1	22

DIAGNOSIS

In patients with a short history of gastric complaints in the advanced age group, the problem of differentiating a benign ulcerating lesion of the stomach from a malignant one often presented difficulties. The criteria employed in arriving at a definite diagnosis were the physical findings, gastric analysis, the clinical course, periodic roentgen examinations, gastroscopic examination whenever possible, disappearance of occult blood from the stools and operative and pathologic diagnoses.

In view of the complicating diseases present in many of the older patients, gastroscopy was not always feasible. This examination was performed in 13 cases. In 8 cases of gastric ulcer there was agreement between the roentgenologic and gastroscopic opinions. In 2 cases of duodenal ulcer the endoscopic examination of the stomach did not reveal any pathologic changes. In 1 case of gastric ulcer the lesion was seen on roentgen examination but not by the gastroscopist. In 1 patient, a duodenal ulcer with a crater was found roentgenologically, and gastroscopically an additional gastric ulcer of the posterior wall was observed. In another case both the roentgen and the endoscopic examinations pointed to a probable malignant growth of the lesser curvature; at operation a benign ulcer was found.

In an aged person, the differentiation between an acute episode due to coronary artery disease or to a peptic ulcer, or to the coincidence of both entities, may be difficult. This was illustrated by the following case:

M. H., a man aged 71 years, who gave a four year history of slight pyrosis, was admitted on Dec. 24, 1945, with complaints of epigastric pain radiating to the precordial region and weakness for eight days. Coronary precautions were taken after an electrocardiogram showed evidence of myocardial infarction. On Jan. 8, 1946, a roentgen examination showed an irregular pylorus and a spastic and irregular bulb. On January 16 the epigastric pain became severe, occult blood was noted in the stool and a flat roentgenogram showed free air under the diaphragm. At operation, a perforated gastric ulcer was found.

That the so-called "ulcer diathesis" may be observed in a person past 60 years of age was illustrated by the following case:

J. S., a man aged 68 years with a three year history of epigastric pain, was first admitted in April 1939, with clinical evidence of a perforated ulcer. The roentgen examination showed no air under the diaphragm, but at operation a perforated prepyloric ulcer was found and sutured. In December 1944, at the age of 73, he was readmitted with complaints of epigastric pain for one week and vomiting and hematemesis for two weeks. A roentgen study revealed a duodenal ulcer. He improved on medical therapy. In August 1945, he was again admitted, complaining of dysphagia and vomiting immediately after meals. A roentgenogram showed a funnel-shaped narrowing of the lower half of the esophagus. Esophagoscopy revealed an inflammatory lesion, a biopsy of which, after dilatation, was reported as showing an inflammatory ulcerating lesion of the esophagus.

Elderly patients without previous gastric complaints may have a perforation of an ulcer during the course of another illness, as illustrated by the following case:

A. S., a man aged 63 years, was admitted in May 1946 with acute urinary retention due to a hypertrophied prostate. He had no previous history of dyspepsia. While an intravenous pyelogram was being done, he went into shock. A roentgenogram showed free air under the diaphragm. At operation a perforated prepyloric ulcer was found.

Complicating Diseases.—In many of the patients, other pathologic conditions accompanied the peptic ulcer. Diverticulum of the esophagus was present in 1 patient, peptic ulcer of the esophagus in 1, hiatus hernia in 8, gallbladder disease in 7, Echinococcus cyst of the liver in 1 and diverticulosis and diverticulitis of the colon in 4. Arteriosclerotic heart disease was present in 22 patients, bronchial asthma in 1 and thrombophlebitis of the legs in 2. Diabetes was encountered in 2 patients, syphilis in 2, Paget's disease in 1 and diseases of the prostate gland and bladder in 6. Another patient with an obstructive ulcer had been operated on for carcinoma of the sigmoid eighteen months prior to his admission for ulcer treatment.

TREATMENT

Medical Treatment.—The uncomplicated ulcer in aged patients whose symptoms have their onset after 60 does not as a rule present any special therapeutic problem. However, certain precautions should be

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observed. The use of atropine or belladonna even in therapeutic doses may precipitate acute glaucoma in older patients. Soluble alkalis should never be employed in patients with impaired renal function, which is often encountered in elderly people. The albumin hydroxide preparations are preferable. The addition of magnesium trisilicate to aluminum hydroxide gel may obviate the occurrence of fecal impaction sometimes observed in old persons when aluminum hydroxide alone is employed.

The serious complication of hemorrhage appears to be more frequent in patients over 60 years of age. The objectives in the treatment of a bleeding ulcer in an elderly patient are the same as in a younger person, namely, to aid in the arrest of bleeding, overcome shock, dehydration and anemia, and prevent recurrence of hemorrhage. It is our experience that persistence with medical treatment and the liberal use of citrated blood transfusions are more often rewarded by the survival of the patient than is surgical treatment. Slow intravenous administration of isotonic solution of sodium chloride and dextrose and citrated transfusions should be used freely to combat anemia and shock without fear that any elevation of blood pressure which may result from these therapeutic measures will have a deleterious effect.

In elderly patients with impaired renal function, the occurrence of extrarenal azotemia adds to the danger of hemorrhage, and persistently high levels of nonprotein nitrogen indicate a bad prognosis. To combat this, fluids must be administered. In doing so, care must be observed to avoid overloading the heart and pulmonary edema. In addition to administering all intravenous fluids slowly, a good guide is to restrict the parenteral intake of fluid to about 3 per cent of the body weight in twenty-four hours.

The Meulengracht regimen in our opinion should not be used in the treatment of hemorrhage in elderly patients with ulcer. We have observed recurrence of bleeding, severe pain and perforation during the course of such treatment. The dietetic regimen which was employed has been outlined previously [1] and has been referred to as the "combined method." It consists of withholding all oral feedings and supplying fluids and vitamins parenterally until bleeding has ceased. If small feedings are then well tolerated, the food intake is rapidly increased.

The barbiturates are preferable to morphine as sedatives. Morphine employed during a hemorrhage may interfere with the vasomotor reactions and intensify the circulatory inadequacy.[3]

Surgical Treatment.—Nineteen of the 81 patients were operated on. In 11 a perforation was sutured. Six of these patients died. Three cases of pyloric obstruction did not yield to medical treatment. A subtotal gastric resection was performed in one, a posterior gastroenterostomy in another and a vagotomy and gastroenterostomy in the third case. All 3 patients survived. Five patients had uncomplicated ulcer refractory to medical treatment. A subtotal gastric resection was performed in 3 of them, 1 of whom died; in another patient, a posterior gastroenterostomy was done; in the fifth case, the operation could not be concluded because the patient went into shock during the procedure. She recovered and on a subsequent admission showed evidence of obstruction but refused further surgical treatment. Of the 28 cases of hemorrhage encountered in this series, 11 involved bleeding of grades 3 and 4; none of the cases of bleeding came to surgery.

Perforation of a peptic ulcer requires immediate surgical intervention, irrespective of the age of the patient. Clinical experience has shown that the mortality rate in these cases depends largely on the time which elapses between the perforation and the operation and the amount of gastric contents at the time of rupture. This holds true especially in elderly patients, who as a rule are not good surgical risks.

Pyloric obstruction due to ulcer in older patients often responds to medical measures. Gastric lavage, antispasmodics, a liquid and semiliquid diet were employed to determine whether the stenosis was of an inflammatory or cicatricial origin. In the latter type, surgical treatment was advised. In either case, dehydration and hypoproteinemia must be corrected and the chemical balance restored.

In those cases in which there is bleeding from an ulcer or an erosion in a hiatus hernia, phrenic crushing is sometimes performed after the cessation of hemorrhage. This procedure may prevent recurrent bleeding.[4]

In the treatment of elderly subjects it is advisable to have the period of bed rest as short as possible. Early ambulation helps to prevent pulmonary embolism.

MORTALITY

Thirteen patients, or 16 per cent of the 81, died. Of 11 patients with perforation, all of whom were operated on, 6 or 55 per cent succumbed. Of 28 patients with hemorrhage, all of whom were treated medically, 3 or 10.7 per cent died. Of 29 patients without complications of ulcer, 1 died after a subtotal resection, 1 from a carcinoma of the prostate and hemiplegia, 1 from a coronary occlusion, and 1 from pulmonary embolism secondary to thrombophlebitis of the legs. Of the 19 patients operated on, 7 died, a mortality of 36.8 per cent.

COMMENT

The increase in the number of persons over 60 years of age in the general population has led to a greater interest in all disease processes which affect them. It seems worth while to emphasize the not infrequent onset of peptic ulcer in the aged. The necessity of considering peptic ulcer and its complications in elderly persons in the differential diagnosis of abdominal complaints of relatively short duration is obvious.

Complications of ulcer seem to occur more frequently in those persons with an onset of symptoms late in life. The general incidence of hemorrhage in patients of all ages hospitalized for peptic ulcer is approximately 30 per cent. In a series reported by Keefer and McKell of aged patients with ulcer, hemorrhage was present in 31 per cent.[5] In the group of 81 cases which is the basis of this study, hemorrhage was present in 38 per cent.

None of the patients with hemorrhage uncomplicated by perforation were operated on. It is interesting to compare the mortality of 10.7 per cent in this group of bleeding ulcers in patients over 60 years of age, observed between 1941 and 1947, with that of a group of patients, over 50 years of age, treated from 1927 to

3. Drew, J. H.; Dripps, R. D., and Comroe, J. H., Jr.: Clinical Studies of Morphine, Anesthesiology **7**: 44-61 (Jan.) 1946.

4. Pickhardt, O. C.: Hiatus Hernia in Older People, to be published.

5. Keefer, E. D., and McKell, D. McC., Jr.: Peptic Ulcer in the Aged, J. A. M. A. **133**: 1055-1060 (April 12) 1947.

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1941.[1] In the latter group there was a 16.4 per cent mortality in those patients treated by various medical regimens and a 20 per cent mortality in those treated surgically. We attribute the improvement in the survival rate in the group now being reported to the increased and unsparing use of citrated blood transfusions and intravenous infusions which serve to keep the patient alive until healing of the ulcer and cessation of bleeding can take place. Hypertension is no contraindication to the use of transfusions, when indicated, and hypertension in a patient with bleeding ulcer has little effect on the severity of the bleeding. Our present experience corroborated this previously recorded observation.[6] Secondary hemorrhage in elderly persons does not necessarily constitute a definite indication for surgical intervention. We have seen elderly patients who had severe secondary hemorrhage and who survived with medical treatment. Any routine employment of surgery in the older group of patients with bleeding ulcer would probably result in a higher mortality than that which occurs with persistence in medical measures. However, if a patient has a hemorrhage which is so rapid and profuse as to produce a state of impending shock, massive transfusions and surgery should be employed immediately.

It has been stated that perforation of an ulcer rarely occurs in a patient over 50 years of age.[7] In the present series, perforation occurred in 11 patients or 13.8 per cent. Some of the perforations occurred in elderly patients without any previous gastric complaints. The incidence of perforation as a complication of hemorrhage in ulcer is generally considered to be 1 per cent. In this series, 10 per cent of the patients who had a hemorrhage also had a perforation. Our experience would indicate that perforation of peptic ulcer is not uncommon in older patients.

Pyloric obstruction is another complication which is not infrequently seen in elderly patients with peptic ulcer. It may be the first indication of the presence of an ulcer. Pyloric obstruction in an older patient with a short history of gastric complaints and loss of weight presents an especially difficult diagnostic problem in differentiating a benign from a malignant lesion. Obstruction due to ulcer in an elderly patient often responds to medical treatment. In younger patients, a severe degree of organic obstruction may at times be compatible with relative comfort. Elderly persons suffering from cicatricial pyloric stenosis are much more susceptible to alkalosis, hypochloremia and azotemia. Therefore, if these patients do not respond readily to medical treatment, surgical treatment is more imperative, and should be performed after the chemical imbalance has been corrected.

SUMMARY

In a series of 1,800 successive hospital admissions for peptic ulcer, 81, or 4.5 per cent of the patients, had no symptoms referable to the ulcer prior to reaching the age of 60 years. Fifty-eight per cent of the 81 patients had complications of ulcer on admission. Hemorrhage was the chief complaint in 38 per cent of the cases. The mortality from hemorrhage in this series was 10.7 per cent. No case of bleeding was treated surgically. Liberal use of slowly administered infusions and transfusions are advocated, when necessary, in the treatment of hemorrhage due to ulcer in the aged. Hypertension is not a contraindication to these measures.

Perforation was the initial evidence of ulcer in 13.8 per cent of the cases, and the mortality of this complication was high. Pyloric obstruction due to ulcer in the aged often yields to medical treatment. Surgical treatment is imperative in those patients whose obstruction is refractory to medical therapy.

Complicating diseases play an important role in the prognosis of ulcer in elderly patients.

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6. Rafsky, H. A., and Weingarten, M.: Effect of Hypertension on Prognosis of Bleeding Peptic Ulcer, Rev. Gastroenterol. **11**:93-101 (March-April) 1944.

7. Bockus, H. L.: Gastroenterology, Philadelphia, W. B. Saunders Company, 1943, vol. 1, p. 503.

RESULTS OF VAGUS NERVE RESECTIONS IN TREATMENT OF PEPTIC ULCER

An Anatomic, Physiologic and Clinical Study

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We have on previous occasions reported in detail our studies on the variations in the anatomy of the vagus nerves and the early results which have followed the performance of vagus nerve resections for gastroduodenal and jejunal ulceration, first in a group of 66 cases and later in a group of 83 cases which included the original 66 cases.[1]

In the second report, as well as in the first, the cases were divided into two series: (1) those (40 cases) of one of us (W.W.), in which the approach was through the abdomen in all but 1 case and (2) those (43 cases) in which the operation was performed by other surgeons at the Mayo Clinic (table 1). Nineteen of the forty-three operations were performed transthoracically.

Since the results of operation in the 83 cases have already been reported in detail we have confined ourselves in this brief report to a summary of the results, both favorable and unfavorable, in our cases (series 1), which now total 50, and in the cases of our colleagues (series 2), which now (May 1, 1947) total 68 (table 2).

SERIES 1 (OUR CASES)

In our 50 cases resection of the vagus nerves has been performed in 34 cases of duodenal ulcer, in 7 cases of gastrojejunal ulcer and in 9 cases of gastric ulcer.

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Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastroenterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Bradley, W. F.; Small, J. T.; Wilson, J. W., and Walters, W.: Anatomic Considerations of Gastric Neurectomy, J. A. M. A. **133**: 459-461 (Feb. 15) 1947. Walters, W.; Bradley, W. F.; Small, J. T.; Wilson, J. W., and Neibling, H. A.: Anatomic Distribution of the Vagus Nerves at the Lower End of the Esophagus; Relation to Gastric Neurectomy for Ulcer, Arch. Surg. **55**: 400-422 (Oct.) 1947. Walters, W.; Neibling, H. A.; Bradley, W. F.; Small, J. T., and Wilson, J. W.: Gastric Neurectomy: Aratomic and Physiologic Studies with Favorable and Unfavorable Results in the Treatment of Peptic Ulcer, Arch. Surg. **55**: 151-163 (Aug.) 1947; A Study of the Results, Both Favorable and Unfavorable, of Section of the Vagi Nerves in the Treatment of Peptic Ulcer, Ann. Surg. **126**: 679-686 (Nov.) 1947; Gastric Neurectomy for Gastric and Duodenal Ulceration: An Anatomic and Clinical Study, ibid. **126**: 1-18 (July) 1947.

DUODENAL ULCER

First of all it must be remembered that the patients with duodenal ulcer selected for vagus nerve resections were chosen from that group of approximately 12 per cent of all patients with duodenal ulcer seen at the clinic in whom an operation of some type was thought to be necessary since nonsurgical methods had failed. This would comprise those whom we formerly would have considered suitable for partial gastrectomy. This rate of 12 per cent contrasts with that of 37.6 per cent of patients in whom operations for duodenal ulcer were performed in 1928 (table 3).

In 21.2 per cent of the patients operated on in 1928, the ulcer was small and nonobstructive and the duodenum was movable enough so that excision of the ulcer with pyloroplastic procedures was carried out. Much is made of this fact because with a decrease in the percentage of patients operated on for duodenal ulcer, most such patients now are found to have at operation large, obstructing, perforating or hemorrhagic duodenal ulcers; in such patients it would be necessary to perform an associated drainage operation of the stomach to prevent gastric retention if vagotomy were performed. Thus, in our series of 50 cases, in

TABLE 1.—*Comparative Statistics of Reported Vagotomies to February 1947*

		Duodenal Ulcer		Gastrojejunal Ulcer		Gastric Ulcer	
	Cases	Cases	%	Cases	%	Cases	%
Dragstedt *.....	170	147	86	15	9	8	5
Mayo Clinic							
Series 1.....	40	28	70	7	18	5	12
Series 2.....	44	26	60	17	40	0	0
Total.....	84	54	65	24	29	5	6
Grimson †.....	57	40	70	10	18	7	12
Moore ‡.....	74	57	77	16	22	1	1
Colp §.....	33	20	61	12	36	1	3

* Harper, P. V., and Dragstedt, L. R.: Arch. Surg. **58**: 141, 1947.
† Grimson, K. S.; Baylin, G. J.; Taylor, H. M.; Hesser, F. H., and Rundles, R. W.: Arch. Surg. **55**: 175, 1947.
‡ Moore, F. D.: Ann. Surg. **126**: 661, 1947.
§ Colp, R.: Unpublished data.

only 19 was it thought advisable to do a vagus nerve resection without some other simultaneous operation of the stomach, such as either a drainage operation to prevent postoperative gastric stasis or excision of a gastric ulcerating lesion; likewise, in our colleagues' series, in 30 of 68 cases vagotomy was done without other procedure on the stomach.

In discussing the results of the operation we can accept the fact that a complete vagus nerve resection relieves the pain of ulcer and that objectively there is a decided reduction of gastric acidity to an achlorhydric state in more than 50 per cent of cases. These results, however, are both secured at the expense of tonicity of the stomach: dilatation of the stomach occurs which, as a result of the retention of food within it, may produce troublesome symptoms, such as frequent belching of foul gas, a feeling of epigastric fulness and occasionally nausea, vomiting and diarrhea. It would appear that the results of vagotomy should be best in those cases of nonobstructing duodenal ulcer, but in our experience relatively few of the patients with duodenal ulcer who are operated on at the clinic have nonobstructing ulcers.

Vagotomy Only.—In only 10[2] of the 34 patients with duodenal ulcers operated on by us has vagotomy been done without other simultaneous gastric operations (table 4). Six of these 10 patients had complete relief of symptoms, some up to a year after operation. Despite this, roentgenologic examination on dismissal

TABLE 2.—*Gastric Neurectomy: All Cases to May 1, 1947*

		Operation Performed for		
Operation	Total	Duodenal Ulcer	Gastro-jejunal Ulcer	Gastric Ulcer
Gastric neurectomy only				
Series 1.....	17	10	2	5
Series 2.....	31	8	23	0
Gastric neurectomy with gastroenterostomy				
Series 1.....	22	22	..	..
Series 2.....	25	25	..	..
Gastric neurectomy with excision of ulcer				
Series 1.....	11	2	5	4
Series 2.....	12	4	7	1
Total.....	118	71	37	10

showed a duodenal ulcer without crater in 4 patients, 2 of whom gave a positive reaction to the insulin test (table 5). An atonic dilated stomach in 3 patients was present when they were dismissed from the clinic. Gastric acidity was reduced in 5 of the 6 cases; achlorhydria developed in 2 of these 5 patients despite a positive reaction to the insulin test in 1 of the 2. The sixth patient had no preoperative studies of gastric acidity, and postoperatively he gave a positive reaction to the insulin test.

Three of the 10 patients had no distress from the ulcer but did have fulness and bloating, and 1 of the 3 was having diarrhea six months postoperatively. In 2 of these 3 patients achlorhydria occurred and the reaction to the insulin test was negative. The third patient had no reduction in gastric acidity and gave a positive reaction to the insulin test; this patient early had fulness and bloating. When last heard from seven months postoperatively he had no distress and had gained 10 pounds (4.5 Kg.).

One of the 10 patients died one hour postoperatively of coronary insufficiency.

TABLE 3.—*Patients with Duodenal Ulcer, Mayo Clinic*

		Operated on								
	Patients Examined	Total		Gastro-enterostomy		Resection		Pyloroplasty		Other
Year		No.	%*	No.	%†	No.	%†	No.	%†	No.
1928	2,297	830	37.6	567	68.3	32	3.9	176	21.2	55
1945	3,250	417	12.8	92	22.1	307	73.6	3	0.7	15

* Percentage of total patients examined.
† Percentage of patients operated on.

Vagotomy Associated with Other Gastric Operations.—Sixteen of 22 patients who underwent vagotomy associated with gastroenterostomy had good results despite the fact that 7 had some fulness after meals in the early postoperative period and 1 of the 7 had a

2. Three of the 10 had associated cholecystectomy at the time of gastric neurectomy. One of these also underwent appendectomy. In a fourth case biopsy of a small area of mesentery revealed fat necrosis.

physiologic obstruction for twenty-six days which necessitated jejunojejunostomy. This latter patient had a reduction in gastric acidity but no insulin tests were made. He was in excellent health eight months postoperatively. Of the 15 other patients, 7 had evidence of atonicity on roentgenologic examination. Three of these showed evidence of gastroenteric stomas which did not function well although they were open. Five of the 15 patients had achlorhydria, and the others had reduced gastric acidity. Nine of the 15 gave a negative reaction to the insulin test and 1 gave a positive reaction.

Four patients had mild symptoms of diarrhea with bowels moving loosely two to four times a day. In ulcer and pyloroplasty. Both of these had relief of the distress from ulcer; the results of the insulin test were negative and there was achlorhydria.

GASTROJEJUNAL ULCER

There were 7 cases of gastrojejunal or postoperative gastroduodenal ulceration. All of these patients gave histories of intractable pain of long duration. Five of these patients had had gastroenterostomy. One patient had had a Devine exclusion type of partial gastrectomy. The remaining one had had a Billroth I type of gastric resection.

Five patients of the group, in addition to vagotomy, underwent removal of the gastroenteric stoma and the

TABLE 4.—*Results of Vagotomy Three Weeks to Eleven Months After Operation (Series 1)*

Ulcer	Cases	Mean Free Acids: Preoperative	Mean Free Acids: Postoperative	Roentgenogram Two and a Half Weeks After Operation: Normal Motility	Atony	Ulcer Present	Ulcer Distress	Fulness	Gas	Vomiting	Diarrhea	Relief of Symptoms	Deaths
Duodenal: Neurectomy only....	10	54	10	1	3	4* (3 weeks postoperative)	0	2	3	0	3	6	1†
Neurectomy and other gastric operations...	24	57	15	6	9	0	..‡	10	3	1	4	8	1§
Gastrojejunal.....	7	30	13.5	2	1	1 jejunitis (3 weeks postoperative ‖)	0	2	2	0	0	6	0
Gastric.....	9	38	5.1	3	6¶	2 ‖ (several months postoperative)	2‖	4	1	2	2	4	0

* Two positive insulin reactions.
† Coronary insufficiency one hour after operation.
‡ No insulin test; no reduction in acids.
§ Volvulus of ileum nine months after operation.
¶ One four months, 1 five months and 1 seven months after operation.
‖ Negative insulin reactions.

TABLE 5.—*Persistence or Recurrence of Ulceration After Vagotomy in Series 1 (Fifty Cases) and Series 2 (Sixty-Eight Cases)*

Type of Ulcer	Series	Cases *	Postoperative Data: Months After Operation	Clinical Findings	Gastric Acids	Insulin Test
Duodenal.....	1	3	3 to 4 weeks	No distress	2 reduced	2 negative, 1 positive
		1	8	No distress	Reduced	1 positive
	2	1	3	Occasional ulcer distress	Reduced	None
Gastrojejunal.....	1	1	1	No distress	20 total, 6 free †	Negative
	2	1	6	Several hemorrhages	40 total, 28 free †	Negative
		2	3	No distress (ulcer by roentgenogram)	Reduced	None
		2	3 to 4 weeks	No distress (jejunitis by roentgenogram)	Reduced	Negative
Gastric.....	1	2	6	Ulcer distress	Temporary achlorhydria	Negative

* Patients with persistence or recurrence of ulcer. † Preoperative acids not available.

3 of these relative achlorhydria developed and the reaction to the insulin test was negative. One had no postoperative studies of gastric acidity.

Two patients had early retention of gastric contents and later had bad results. One of these has continued to have distress from ulcer with gas and fulness. No insulin test was done in this case and the patient did not have a reduction of gastric acidity; apparently not all of the nerve fibers were resected. The second patient had such a severe postoperative ileus that mechanical obstruction was suspected, but this was not found at reexploration seven days after vagotomy and gastroenterostomy. This patient died nine months postoperatively, at home, after being operated on for volvulus of the terminal ileum and mesenteric thrombosis.

Two patients had other gastric operations, one a partial gastric resection and the other an excision of jejunal ulcer; in 2 of these pyloroplasty was also done because of the stenosis produced by the duodenal ulcer which had healed after gastroenterostomy. In 1 patient an anterior Polya-Balfour gastric resection was done, in addition to removal of the gastroenteric stoma and the ulcer.

In 4 of the 7 cases results were excellent, with relief of pain and with no complaints of fulness, bloating, nausea or diarrhea. The other 3 patients had what might be considered satisfactory results. One of these patients complained of a short spell of anorexia and loss of weight after being perfectly well for six weeks postoperatively. Two had minor complaints of fulness after meals which had lasted for several weeks in one and was still present at the end of six months in the other.

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Studies of gastric acidity in these 7 patients revealed a mean reduction from 30 units of free hydrochloric acid preoperatively to 13.5 units postoperatively (Töpfer's method); 4 patients of the 7 had achlorhydria postoperatively and are considered in obtaining this average. Insulin tests were done in 6 with negative results.

When the severity and prolonged nature of the illness of these patients are considered, the results of vagotomy with removal of the gastrojejunal ulceration and the gastroenteric stoma appeared to be satisfactory as far as early results are concerned. It must be remembered, however, that equally good results occur in 50 per cent of cases when removal of the gastrojejunal ulcer and the gastroenteric stoma is done without vagotomy.

Disturbances of motility appeared in 2 patients in this group and later complications such as recurring duodenal ulceration were not encountered.

GASTRIC ULCER

In spite of the fact that the operation of subtotal gastrectomy in the treatment of chronic gastric ulcer has given excellent results with a very low mortality, we felt it advisable to perform vagus nerve resection in a small series of patients with different-sized gastric ulcers in order to determine the results of the operation and to compare them with the results in patients who had undergone partial gastrectomy for ulcer.

Nine patients were chosen for the procedure. In 4 of these patients the gastric ulcers were relatively large, the diameter varying from 1.5 to 5 cm. In addition to the performance of a vagus nerve resection, openings were made in the stomach in 4 cases, and after gross examination the ulcers in 2 cases were removed for microscopic examination. In the remaining 5 cases the ulcers, although chronic in type and small, were neither removed nor subjected to biopsy. Relief of the pain from the ulcer was obtained in 7 of the 9 patients despite the fact that 3 of the 7 had positive reactions to the insulin test; 2 patients did not have achlorhydria but both had reduced acidity and 1 had a positive reaction to the insulin test.

In 2 patients the ulcer persisted, as evidenced by the roentgenographic findings, and produced pain. Both of these patients gave repeatedly negative reactions to the insulin test, indicating that all branches of the vagi had been cut. One of these patients had a course of intensive (six months) medical management after complete vagotomy without effect on the ulcer. Partial gastrectomy with removal of a large benign perforating gastric ulcer 2.5 cm. in diameter was done six months after vagotomy. In this case, one month after operation roentgenologic examination of the stomach gave negative results; an adequate, free anastomosis was present and there was no gastric distress. The other patient, reexamined two and one-half months postoperatively, had a questionable area of ulceration high on the lesser curvature on roentgenologic examination. He has had occasional slight distress from ulcer, with considerable bloating and gas. In a communication seven months after operation he stated that he had vomited occasionally and that he had some diarrhea. Insulin tests on this patient have also given consistently negative results.

Motility was studied clinically, roentgenoscopically and roentgenographically. In 3 of the 9 patients no evidence of disturbance of motility was obtained by either method of study. One of these 3 patients gave a positive reaction to the insulin test. The remaining 6 patients showed evidence of an atonic dilated stomach, and it was in this group that the patients complained of fulness, bloating and belching of foul-smelling gas. Two of the patients also had some vomiting and diarrhea. One of the patients in whom these symptoms continued for seven months subsequent to operation was started on a course of carbaminoyl-beta-methylcholine chloride ("urecholine") as recommended by Machella, Hodges and Lorber,[3] with roentgenographic evidence of immediate improvement of gastric motility but with little evidence of clinical benefit.

In this group of 9 patients there was a decided reduction of gastric acidity from a mean preoperative value of 38 units of free hydrochloric acid to 5.1 units postoperatively. In 6 of the patients achlorhydria was obtained. Of the 3 patients in whom achlorhydria was not obtained, 2 gave a negative reaction to the insulin test and 1 reacted positively. Two patients who had no free fasting hydrochloric acid two weeks after operation were found to have a return of small amounts of free hydrochloric acid when observed one month and three months later, respectively.

In general, in the group of 9 patients with gastric ulcer 7 obtained relief of pain. All had reduction of gastric acidity but 3 had prolonged disturbances of motility. One ulcer failed to heal and one ulcer recurred despite apparent complete section of the vagus nerves, as demonstrated by clinical and laboratory tests, including the insulin test.

SUMMARY OF RESULTS IN SERIES 1

Vagotomy Alone.—In our series of 50 cases to date vagotomy alone was done without other procedure in 10 patients with duodenal ulcer, in 2 with gastrojejunal ulcer and in 5 with gastric ulcer. All of these patients obtained relief of the pain caused by ulcer. Three of the 10 patients with duodenal ulcer and 1 of the 5 with gastric ulcer had disturbances of motility. One patient with duodenal ulcer and 1 with gastric ulcer each gave a positive reaction to one insulin test postoperatively, and neither had a reduction of gastric acidity. Four of the patients with duodenal ulcer were reported at dismissal (approximately two and a half to three weeks after operation) as still having visible ulcers on roentgenologic examination. Two of these patients gave a positive reaction to the insulin test.

Vagotomy with Other Gastric Operation.—Vagotomy with a simultaneous gastric operation was done in 24 patients with duodenal ulcer, in 5 with gastrojejunal ulcer and in 4 with gastric ulcer. In 23 of the 24 patients with duodenal ulcer, in all 5 of the patients with gastrojejunal ulcer and in 2 of the 4 patients with gastric ulcer relief of distress from the ulcer was obtained. Ulceration recurred in 1 patient with gastric ulcer in whom subtotal gastrectomy was necessary six months later, and in another the gastric ulcer failed to heal. Both had pronounced reductions of gastric acidity and repeatedly negative reactions to the insulin test after vagotomy. Six of the 24 patients with duodenal

3. Machella, T. E.; Hodges, H. H., and Lorber, S. H.: The Restoration of Gastric Motility by Urethane of β-Methyl Choline After Section of the Vagus Nerves for Peptic Ulcer, Gastroenterology **8**: 36-51 (Jan.) 1947.

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ulcer who had associated gastroenterostomy, 2 of 5 patients with gastrojejunal ulcer and 3 of 4 patients with gastric ulcer all had moderate to marked disturbances of motility. Of these, 1 of the patients with duodenal ulcer who reacted negatively to the insulin test and 1 patient with gastrojejunal ulcer who reacted positively to the insulin test had no reduction in gastric acidity.

The total incidence and the incidence by type of lesion for motility disturbances are given in tables 6 and 7 respectively.

SERIES 2 (COLLEAGUES' CASES)

The data presented in series 2 were obtained by a review of the records of all the other patients operated on at the Mayo Clinic over the same period as those personally operated on and studied by one of us (W. W., series 1). They are presented in order to complete the record of the results of vagotomy in the treatment of duodenal, gastrojejunal and gastric ulcer at the Mayo Clinic until May 1, 1947 (table 8). As both are factual reports no conclusions will be drawn.

TABLE 6.—*Motility Disturbances After Vagotomy (Fulness, Gas, Belching, Nausea, Vomiting, Diarrhea): Incidence by Type of Lesion*

Type of Ulcer	Cases at Stated Intervals After Operation: Dismissal	3 Mo.	6 Mo.	9 Mo. or Longer
Series 1 (Fifty Cases)				
Duodenal	15	4	3	4
Gastrojejunal	1	..	2	1
Gastric	4	1	2	1
Total	20	5	7	6
Series 2 (Sixty-Eight Cases)				
Duodenal	10	3	..	10
Gastrojejunal	6	3	1	2
Gastric	..	..	..	..
Total	16	6	1	12

TABLE 7.—*Motility Disturbances After Vagotomy (Fulness, Gas, Belching, Nausea, Vomiting, Diarrhea): Total Incidence*

	Cases	Percentage of Patients at Stated Intervals After Operation: Dismissal	3 Mo.	6 Mo.	9 Mo. or Longer
Series 1	50	40	10	14	12
Series 2	68	24	9	1.5	18
Total	118	31	9	7	15

DUODENAL ULCER

Vagotomy Only.—In 8 cases of duodenal ulcer no other operation was performed; 5 of these were done transthoracically and 3 abdominally.

Transthoracic Approach: Four of the 8 patients who underwent vagotomy only had good results although 2 had some trouble immediately after operation. Both of these had retention of food and fluid which, in 1 of them, necessitated gastroenterostomy for obstructive manifestations two months after vagotomy. This patient had a reduction of acidity and gave a negative reaction to the insulin test. The other patient had a severe episode of pain fourteen days postoperatively and was thought possibly to have an acute perforation of the duodenal ulcer. The pain gradually subsided. He had also obtained achlorhydria from the operation. All 4 patients, some until eleven months after operation, reported that they were feeling well. One patient had early retention with belching and fulness. He had a reduction in gastric acidity, but no insulin test was done. Eight months after operation there was no distress from ulcer but the patient complained of gas and occasional episodes of diarrhea.

Abdominal Approach: One of the 3 patients who underwent vagotomy abdominally was well at dismissal and had had a reduction of gastric acidity. Another patient had retention early postoperatively with intermittent periods of vomiting and diarrhea three months postoperatively. Roentgenologic examination at that time revealed that the duodenal ulcer was still present. The patient had a reduction of acidity but no insulin tests were made. Seven months postoperatively he was still having slight pain after eating, some gas, fulness and bloating. The third patient died suddenly on the fourth postoperative day and, although no necropsy was performed, death was thought to be due to an embolus.

Vagotomy and Associated Gastric Operations for Duodenal Ulcer.—Twenty-five patients with duodenal ulcer underwent vagotomy and gastroenterostomy. Twenty-four of these had relief of the symptoms of ulcer. Eighteen of these 24 patients had no disturbances of motility. Thirteen of the 18 had reduction of gastric acidity, 4 obtaining achlorhydria. Only five insulin tests were made and the reaction in one of these was positive. Six patients had disturbances of motility characterized by epigastric fulness, nausea or diarrhea. Three of these had postoperative studies of acidity and in all the acidity was reduced. No insulin tests were made.

One patient with pronounced postoperative gastric retention and hypoproteinemia died on the fourteenth postoperative day. At necropsy an unexpected perforated duodenal ulcer with subdiaphragmatic abscess was found.

Vagotomy and Pyloroplasty.—Four patients underwent pyloroplasty in addition to vagotomy. All of these obtained relief of distress from ulcer. Two had disturbances of motility of consequence. One of these 2 patients was still complaining of fulness, bloating and diarrhea six months postoperatively; he had lost 10 pounds. The other patient early had similar symptoms which lasted about ten months. For the past six months this patient has been free of such symptoms. Both of these patients had a reduction of gastric acidity, but no insulin tests were made.

GASTROJEJUNAL ULCER

There were 30 cases of gastrojejunal ulcer in which vagotomy was done. In 3 of these the operation was performed too recently to permit of evaluation. Of the remaining 27 cases, in 15 the operations were done transthoracically and in 12 abdominally.

Transthoracic Approach.—Nine of 15 patients had good results from vagotomy with absence of all symptoms of ulcer. Seven had had gastric resection and 2 had had gastroenterostomy previously. Three of the patients previously subjected to gastric resection had absence of symptoms of ulcer but had mild disturbances of motility. One of these had transient abdominal distention for a few weeks while the other 2 complained of diarrhea which lasted a few weeks and nine months, respectively.

Three patients had unsatisfactory results with recurrence of the symptoms of ulcer. One of these, who had had three previous gastric resections, suffered from a severe gastric hemorrhage a year after vagotomy. In the preceding year since vagotomy he had been in better health than in the previous ten years, with only mild complaints of generalized abdominal discomfort and constipation which he ascribed to his old adhesions. The second patient who had had gastric resection previously showed persistence of the ulcer on roentgenologic examination one month after operation and experienced symptoms of ulcer two months after vagotomy; this patient responded well to medical treatment. The third patient had had repeated exsanguinating hemorrhages after gastroenterostomy and continued to bleed for six months after vagotomy performed elsewhere. Resection was done at the clinic and a large stomal ulcer was found. In only the first of these 3 patients did achlorhydria develop after vagotomy and in only the third patient was an insulin test done which gave positive results. Therefore vagotomy was suspected of being incomplete in 2 patients and inadequate in the third.

One patient dismissed with no complaints had no drop in acidity and gave a positive reaction to the insulin test. Four patients had sufficient postoperative pleural effusion to require aspiration. Three of 8 patients checked roentgenologically after operation showed a low grade ileus of the upper part of the small bowel, in 1 of whom the motility was normal three months later. In 3 cases the ulcer had healed several weeks after operation and in 1 the ulcer had decreased in size.

Abdominal Approach.—In 7 patients the existing anastomosis was not disturbed; 4 of these had had previous gastroenterostomy and 3, gastric resection. Three had obtained good results clinically when dismissed, though in 1 the value for total acidity was still 100 units and for free acidity 80 units. No insulin test was done in the latter case. Three still complained of minor degrees of fulness and diarrhea several months after operation; 1 of these had a malfunctioning enteric stoma with possible persistence of the ulcer, as evidenced on roentgenologic examination several weeks after operation. The remaining patient noticed gas and dizziness when hungry which was relieved by frequent small meals.

One patient underwent disconnection of the enteric stoma as well as vagotomy. He had no drop in gastric acidity, and the insulin test gave positive results. He suffered from retention and vomiting for a month and was still belching foul gas and vomiting occasionally four months later.

One patient underwent disconnection of the enteric stoma and pyloroplasty with good results. One patient had the gastroenteric stoma disconnected and gastroduodenostomy done. He had occasional ulcer distress and fulness but was in good health otherwise. Two patients with gastrojejunocolic fistula had good early results after disconnection of the enteric stoma, closure of the fistula and reestablishment of the enteric stoma, in addition to vagotomy. One died at home three and a half months postoperatively from a coronary occlusion as reported by his home physician.

TABLE 8.—*Results of Vagotomy Three Weeks to Seventeen Months After Operation (Series 2)*

Ulcer	Cases	Mean Free Acids: Pre-operative	Mean Free Acids: Post-operative	Roentgenogram Two and a Half Weeks After Operation: Normal Motility	Atony	Ulcer Present	Ulcer Distress	Fulness	Gas	Vomiting	Diarrhea	Relief of Symptoms	Deaths
Duodenal:													
Vagotomy only	8	58	24	0	2	1*	1* occasionally	2	2	1	0	5	1†
Vagotomy and other gastric operation	29	51	14	0	1	0	0	8	5	2	3	17	1‡
Gastrojejunal:													
Vagotomy only (abdominal)	7	34	20	0	1	1* (3 wk. postoperative)	0	2	2	0	1	3	0
Vagotomy only (thoracic)	17	41	8	4	1	3* (1 at 3 wk. and 1¶ at 6 mo. postoperative)	1*	1	1	1	1	11	1§
Vagotomy and other gastric operation	6	25	14	0	2	1¶	1*, 1‖	2	2	1	0	4	1#
Gastric	1	60	20	0	0	0	0	0	0	0	0	0	0

* No insulin test.
† Embolus on fourth postoperative day.
‡ Perforation with subdiaphragmatic abscess on fourteenth day.
§ Cerebral hemorrhage on thirteenth postoperative day.
¶ Negative insulin reaction.
‖ Positive insulin reaction.
Coronary occlusion three months after operation; gastrojejunocolic fistula.

GASTRIC ULCER

Only 1 patient with gastric ulcer, which was located in the pyloric ring, was studied in series 2. The ulcer was excised and pyloroplasty was done simultaneously. The patient obtained early relief of symptoms and a reduction in acidity. No insulin test or postoperative roentgenogram was made.

RESULTS OF SURGICAL TREATMENT FOR GASTRIC ULCER

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Gastric ulcer presents a serious problem in its treatment because of possible malignant degenerative changes arising in a benign ulcer and especially because of the considerable percentage of diagnostic errors made in distinguishing between benign and malignant ulceration of the stomach. We believe it will be of value to discuss these serious aspects of the problem and to present the results of experiences at the Lahey Clinic with the surgical treatment of gastric ulcer over a ten year period (1936 to 1945 inclusive). From this study an attempt will be made to draw some conclusions regarding the management of peptic ulcer arising in the stomach.

This study is in order because in the past we have advised a more or less conservative approach; that is, employment of a medical regimen rather than a surgical procedure in the treatment of the majority of patients with gastric ulcer. Surgical treatment was used only in those cases in which the ulcer failed to heal with medical measures or in those in which there was a reasonable suspicion of malignancy after a period of trial medical management.

It is now our considered opinion that a more positive and aggressive attitude should be accepted in the treatment of gastric ulcer and that this treatment is and should be primarily surgical. Possibly a few patients with acute gastric ulcers should be treated medically and even these should not be observed over a long period unless healing is demonstrated to occur promptly under treatment and is maintained. We wish to state in the beginning that this opinion regarding surgical treatment of all patients with gastric ulcer represents the view of the surgical division and that our division of gastroenterology is not in complete accord with this policy. Furthermore, it is emphasized that all patients with gastric ulcers should be hospitalized during this period of observation and medical treatment and, in the event of nonhealing or if the ulcer defect does not completely disappear, should have immediate operative intervention while they are still confined to the hospital. The treatment of patients with duodenal ulcer presents in many ways such a different problem and the indications for surgical intervention are so well known that one cannot compare in each particular its treatment with the problem of treatment of gastric ulcer. By way of contrast, the treatment of duodenal ulcer is generally recognized to be primarily medical in the majority of cases. Only those patients with presenting complications such as hemorrhage, intractability, perforation and obstruction require operation; in our experience about 8 per cent of duodenal ulcers have required surgical intervention. It is essentially correct to state that the major problem in the treatment of gastric ulcer is so fundamentally that of early detection of gastric carcinoma as well as relieving ulcer distress that the treatment of gastric ulceration must be approached from an entirely different aspect from that of the treatment of duodenal ulcer.

INCIDENCE OF CANCER

Over a period of ten years (1936 to 1945 inclusive), in those cases in which a preoperative diagnosis of benign gastric ulcer has been made, partial resection was carried out on 131 patients. The pathologic study of the removed lesions disclosed carcinoma in 26 of the 131 cases, a diagnostic error of 19.8 per cent in the cases in which operations were done. During this same ten year period, approximately 8,000 patients with peptic ulcer were treated. Of this number 800 had gastric ulcers, a proportion of one gastric ulcer to nine duodenal ulcers; in other words, gastric ulcer occurs much less commonly than duodenal ulcer. Eusterman and Balfour [1] have also stated that in their experience duodenal ulcer is ten times more frequent than gastric ulcer. In the entire group of 800 patients with gastric ulcer treated medically and surgically, there were 26 proved malignant gastric ulcerations, an incidence of proved malignancy of 3.3 per cent for the entire group. This is assuming that none of the patients treated medically proved later to have cancer, a most unlikely possibility. This group of patients not operated on is at present under study in the gastroenterology department. From these data it may be seen that only 131 of 800 patients were treated surgically, a percentage of 16.4. It is only fair to state, however, that all patients in this group of 131 cases, many of whom proved to have malignant ulcers, were ultimately submitted to operation by the gastroenterologist because of failure to heal and because, therefore, gastric cancer could not definitely be ruled out. Yet it is equally pertinent to point out that 17 of this group of 26 patients had been treated one month or longer before decision to operate had finally been arrived at, definite evidence that these patients had been considered to have benign lesions. This trial period of observation over a month we now consider to be too long; decision regarding necessity of surgical intervention should be made much earlier. It would seem likely that some of this group with gastric ulcers in which the treatment was medical must have proved subsequently to have cancer, and only a careful and accurate follow-up of these medically treated patients could disprove this possibility. It is apparent that the problem of diagnosis and treatment of gastric ulcer is a serious one and demands a radically different approach in the treatment and care of these patients.

Allen and Welch [2] reported a similar experience in a study of gastric ulcer. In a group of 277 patients treated medically and surgically, 39, or 14 per cent, were proved to have cancer. Moreover, in a group of 69 patients of his series treated by resection, 30 (43 per cent) were proved histologically to have cancer. Judd and Priestley [3] stated that in their experience the error in preoperative diagnosis of gastric ulcer in differentiating it from gastric carcinoma is approximately 10 per cent.

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1. Eusterman, G. B., and Balfour, D. C.: The Stomach and Duodenum, Philadelphia, W. B. Saunders Company, 1935, p. 259.
2. Allen, A. W., and Welch, C. E.: Gastric Ulcer: Significance of This Diagnosis and Its Relationship to Cancer, Ann. Surg. **114**: 498-509 (Oct.) 1941.
3. Judd, E. S., Jr., and Priestley, J. T.: Treatment of Gastric Ulcer, Surg., Gynec. & Obst. **77**: 21-25 (July) 1943.

Holmes and Hampton[4] very properly pointed out that the successful treatment of patients with cancer of the stomach by any method available at the present time depends on early diagnosis more than on any other single factor, and from roentgenologic study it may be most difficult to determine the benign or malignant character of chronic gastric ulceration. They concluded from their studies that any chronic indurated ulcerative lesion within 2.5 cm. of the pylorus should be considered to be carcinoma. They stated that this is equally true of lesions of the greater curvature and probably of most lesions in the cardiac end of the stomach.

Sproull,[5] in a careful review of the literature, found only 10 proved cases of benign chronic ulceration on the greater curvature. At the Lahey Clinic only 2 such benign ulcerations of the greater curvature have been encountered over a much longer period than this study encompasses. Consequently, we believe that no lesion of the greater curvature should ever be treated medically. It is more or less generally accepted that most benign chronic indurated ulcers occur on the lesser curvature of the stomach above the re-entrant angle, but in this location also the same diagnostic difficulty arises in deciding whether the lesion is benign or malignant.

TABLE 1.—*Malignant Ulceration*

	Cases
A. Diagnostic study and management in hospital (6 to 30 days); clinical improvement and decrease in size of ulcer—discharged; returned 4 months to 3 years later with malignant ulcer	7
B. Hospital treatment and Levine tube drainage for pyloric obstruction (5 to 10 days); operation disclosed malignancy	3
C. Hospital treatment with clinical improvement and decrease in size of ulcer; operation; malignant	1
D. Hospital treatment but no change in size of lesion	7
E. Ambulatory treatment (6 weeks to 3 months); hospital treatment (10 to 15 days); clinical improvement but no change in lesion	2
F. Ambulatory treatment (6 weeks to 6 months); response to treatment not satisfactory; operation	3
G. Ambulatory treatment, with relief; operation for acute perforation of malignant ulcer	1
H. Hospital study—favored benign ulcer; operation because of uncertainty about malignancy	2
Malignant ulcer	26

The response to treatment for ulcer also may be misleading, since patients with malignant ulcers often do well on an ulcer regimen and the lesions appear to become smaller on roentgenologic studies, but never quite disappear. These facts are illustrated in table 1.

In this series of 131 cases of chronic gastric ulceration with the preoperative diagnosis of benign gastric ulcer in which partial resection was finally carried out, there were, as previously stated, 26 malignant lesions and 105 benign gastric ulcers, a percentage of malignant ulcers of 19.8. In none of these cases was the unqualified diagnosis of cancer made; cancer was suspected in some of these patients but all save 2 were treated medically in the hospital or as ambulatory patients. In 2 cases in which the diagnosis was benign ulceration but medical treatment was not given, operation was performed and the lesions proved to be malignant. In table 1 are listed in detail the diagnostic problems and errors. From this table it is apparent that roentgenologic examination and careful study will not definitely determine whether the lesion is malignant. It may also be noted that 9 of the 26 patients demonstrated improvement under a medical regimen and at the same time the ulcer decreased in size, as demonstrated by roentgenologic study, in spite of the fact that it was malignant.

TABLE 2.—*Ages of Patients with Malignant and with Benign Ulcers*

	Malignant Ulcer, Years	Benign Ulcer Years
Average age	51	53
Average age, men	53.7	52.2
Average age, women	42.3	57.3
Oldest patient	79 (male)	82 (female)
Youngest patient	30 (female)	30 (male)

DIFFERENTIATION BETWEEN BENIGN AND MALIGNANT LESIONS

With regard to the sex incidence, 5 patients with malignant ulcerations were women and 21 were men, a ratio of 4 men to 1 woman. In the group of 105 patients with benign ulcers, the proportion was 3 men to 1 woman—28 women to 77 men. It is well known that gastric ulcer occurs more frequently in men than in women. According to Dible,[6] 72 per cent of gastric ulcers are in men; in our benign group, 77 per cent occurred in men. In a report by Walters and Clagett[7] of 272 patients operated on for gastric ulcer, there were 220 men and 52 women, a percentage of 80.9 in men. The Mayo Clinic[1] in another report gave the proportion of men to women as 3.9 to 1.

A study of the age of patients as a determining factor in making a diagnostic distinction between carcinoma and benignity was of little value. The average age of patients with malignant ulcer was 51 and of those with benign ulcer, 53 years (table 2). Sixty-five per cent of those with malignant ulcers were in the age group of 40 to 59 years, whereas 56 per cent of patients with benign lesions fell into the same age group. Moreover, the youth of a patient is not a definite indication that the lesion is benign, as our youngest patient with malignant ulcer was 20 years of age (table 3). The duration of ulcer distress may likewise not be significant, as 1 patient, aged 79 years, with malignant gastric ulcer, had intermittent symptoms of ulcer distress while on an ulcer regimen and diet over a period of seven years.

TABLE 3.—*Age, by Decades of Patients with Malignant and with Benign Ulcers*

Age by Decades, Years	Malignant Ulcer	Benign Ulcer
20-29	1	0
30-39	2	11
40-49	7	27
50-59	10	43
60-69	5	18
70-79	1	6
Total	26	105

It is also of interest to note that gastric ulcer occurs commonly in the older age group; 83.8 per cent of benign ulcers in this series were in patients over 40 years of

4. Holmes, G. W., and Hampton, A. O.: Incidence of Carcinoma in Certain Ulcerating Lesions of the Stomach, J. A. M. A. **99**: 905-907 (Sept. 10) 1932.

5. Sproull, J.: Discussion of Occurrence of Benign Ulcer on Greater Curvature, Am. J. Roentgenol. **25**: 464-473 (April) 1931.

6. Dible, J. H.: Pathology of Gastric Ulcer, Surgery **2**: 675-691 (Nov.) 1937.

7. Walters, W., and Clagett, O. T.: Surgical Treatment of Chronic Gastric Ulcer: Review of Two Hundred and Seventy-Two Cases, Surg., Gynec. & Obst. **71**: 75-79 (July) 1940.

age, whereas in the malignant group 84.6 per cent were in patients over 40, almost identical figures. Because of this tendency of either benign or malignant ulcers to occur in persons past 40 years of age and because at this age one may be said to begin the so-called cancer age, the physician should from the onset seriously consider that gastric ulcerations may be malignant rather than benign.

TABLE 4.—*Duration of Symptoms*

Duration, Years	Malignant Ulcer		Benign Ulcer	
	Cases	Percentage	Cases	Percentage
Less than 1	7	27	31	29.5
More than 3	12	46	52	49.5
More than 5	7	27	22	21.0
Total	26		105	
Average duration	4.1 years		4.9 years	

TABLE 5.—*Size of Gastric Ulcer*

	Malignant Ulcer	Benign Ulcer
Average	2.8 cm.	1.9 cm.
Smallest	7.5 mm.	8.0 mm.
Largest	5.0 cm.	7.5 cm.
Larger than 2.5 cm.	61.5%	27.0%

Gastric symptoms are likely to be similar in benign and malignant ulceration. Epigastric pain or distress may be characteristic and rather frequent, and, indeed, 89 per cent of our patients with distress arising from malignant ulcers were relieved with food or alkali. In this series little difference was noted in duration of symptoms (table 4). Loss of weight was a prominent feature in both groups of cases. A weight loss of 5 to 50 pounds (2.3 to 22.7 Kg.) was noted in the series of benign ulcers, so that pronounced loss of weight was by no means an indication of cancer.

In general, the size of the ulcer did not present reliable evidence of its being benign or malignant, although the malignant ulcer in the majority of cases was larger (figs. 1 and 2). In this series, 61.5 per cent of the malignant ulcers were larger than 2.5 cm. (table 5), whereas only 27 per cent of the benign gastric ulcers were larger than 2.5 cm.

TABLE 6.—*Gastric Acidity (Ewald Test Meal)*

	26 Malignant Ulcers, Percentage	105 Benign Ulcers, Percentage
Acidity above 40	27	22.5
Normal, 15-40	61	50.5
Hypoacidity, below 15	4	14.0
Anacidity (without histamine)	8	13.0

TABLE 7.—*Site of Ulcer in Stomach*

	Malignant Ulcer		Benign Ulcer	
	Cases	Percentage	Cases	Percentage
Prepyloric	12	46.1	41	39.4
Lesser curvature	10	38.5	63	60.0
Greater curvature	1	3.9	1	0.96
Cardia	3	11.5	0	0
Total	26		105	

Acid determinations were surprisingly parallel in both groups; free hydrochloric acid was present in patients with malignant lesions, and anacidity occurred in those with benign ulcers (table 6). The presence or absence of free acid has proved of no value in distinguishing between malignant and benign ulceration, but anacidity should make the examiner more strongly suspect malignancy.

With regard to the site of origin in the stomach and percentage of chronic ulcerating lesions, one does not find any remarkable differences, as one would expect. Although it is true that the largest group of benign ulcers occurs on the lesser curvature, yet there is a considerable number of benign lesions (39.4 per cent) in the prepyloric area, and this was also noted with regard to malignant ulcers (46.1 per cent, table 7). The only significant factors noted, and these should be emphasized again and again, are that malignant ulcerations can and do occur at any site in the stomach and every gastric ulcer should be regarded as malignant until otherwise proved. One is confronted constantly with similarities in symptoms, acidity, site of ulceration, age, and so forth. Although there are different clinical features suggestive of cancer, yet these differences are not definite enough or constant enough to allow one to establish definite criteria for diagnosis. All that one can say is that any gastric ulcer may be malignant,

Fig. 1.—Large gastric ulcer occurring in woman, 58 years of age; malignancy suspected because of irregularity and size of defect and because of failure to heal under medical regimen; absence of free hydrochloric acid noted. Operation proved ulcer to be benign.

that all patients with prepyloric lesions, ulcers on the greater curvature and possibly the cardia should have surgical treatment and not medical treatment; again, that all patients with chronic or recurring lesions should have operation, and only an occasional patient with early acute gastric ulceration should have medical treatment. This treatment should not be persisted in if complete healing with relief of all distress is not obtained immediately.

In the 105 cases of benign ulcers, certain salient features are of special interest. The indications for operation in this group are given in table 8. It is noteworthy that the most frequently occurring indication for operation was suspected cancer, 60.9 per cent in the series of 105 benign cases. Here, again, was incontrovertible evidence that the nature of the lesion so far as it pertains to cancer cannot be determined in a considerable number of cases save by operation and pathologic examination. Roentgen examination, however, will disclose the presence of ulcer but not its nature as relates to possible malignancy. Of 105

cases of benign ulcers the lesion was definitely demonstrated in 102 patients, or 98.1 per cent. Two patients had obstruction at the pylorus but no evidence of prepyloric ulcer, and 1 patient was operated on because of repeated massive hemorrhage. A prepyloric ulcer was found at operation but no ulcer could be demonstrated by roentgenologic examination. The indications for operation in both groups are surprisingly similar.

RESULTS FOLLOWING PARTIAL GASTRECTOMY

The results following partial gastrectomy for gastric ulcer are excellent. Eighty-six per cent of the patients had an absence of free hydrochloric acid after operation. There were no postoperative recurrent ulcers and no obstruction occurred in any case at the gastrojejunal stoma. Recurrent ulcer after an adequate partial resection of the stomach for gastric ulcer is a most infrequent complication. Recurrent ulcer, however, is not uncommon in those cases in which some operation other than radical gastrectomy is done, as is demonstrated by the

Fig. 2.—Carcinoma of stomach in man, aged 51 years. Small penetrating lesion, 2 cm. in diameter, of lesser curvature; free hydrochloric acid, 60. Operation proved ulcer to be malignant with metastasis to nodes.

fact that 12 of the 105 patients with proved benign ulcers had had previous operation (not partial resection) without relief of their symptoms and with definite evidence of recurrent ulcer (table 9).

Because of the difficulty in determining whether an ulcer is benign or malignant, and this can definitely be determined only by pathologic section, it is our opinion that no attempt should be made to treat any patient with gastric ulceration by resection of the vagus nerves. It is of primary importance that the ulcer be removed, and this preferably by partial resection of the stomach. In view of the fact that gastric ulcers rarely occur after resection there is no need for employing resection of the vagus nerves in addition to resection of the ulcer in this condition. One factor has made for hesitancy in removing certain types of ulcers by resection, and that is the location of the ulcer high on the lesser curvature of the stomach. The surgeon without considerable experience with gastric surgery may consider that the ulcer is situated too high for partial resection and apparently may require total gastrectomy for removal of the ulcer. This difficulty, however, is more apparent than real and in the majority of cases is the result of contraction of the gastrohepatic omentum along the lesser curvature because of fibrosis and infiltration with inflammatory exudate associated with these ulcers high on the lesser curvature. When the stomach has been adequately mobilized and the lesser curvature cleaned properly of all areolar and scar tissue, in the majority of cases there is sufficient normal stomach wall above the ulcer to permit gastrojejunal anastomosis without encroachment on the esophagus. We have seldom seen any particular difficulty arise with resection in such ulcers.

Table 8.—*Immediate Indications for Operation*

	26 Malignant Ulcers		105 Benign Ulcers	
	Cases	Percentage	Cases	Percentage
Suspected malignancy	16	61.7	64	60.9
Recurrent ulcer	6	23.0	20	19.5
Intractable ulcer	1	3.8	13	12.0
Pyloric obstruction	3	11.5	6	5.7
Massive hemorrhage	0	....	2	1.9
Total	26		105	

In the last analysis, all patients with gastric ulcer are operated on because of inability to rule out cancer.

Walters and Clagett reported that only 1 patient in 162 cases followed after operation for gastric ulcer had had a poor result and this failure followed simple excision of the ulcer.

Only 1 patient in this series of benign ulcers has had recurrent gastric distress after operation. This patient had had a previous closure of a perforated ulcer and later a posterior gastroenterostomy done at the clinic. He was uncooperative, drank and smoked a great deal and refused to adhere to a reasonable diet which was not especially strict. Most patients within a few weeks or months after operation can eat an ordinary, full diet with few restrictions and with no gastric distress. All are relieved of ulcer distress and pain and all are able to return to work usually within three months after operation.

There were 3 deaths following resection, an operative mortality of 2.85 per cent in the group of 105 cases with benign gastric ulcers. Over a period of nine years during which ninety-six consecutive operations were done, however, there were no deaths (Sept. 15, 1936 to Sept. 15, 1945). Prior to September 1936, 1 death occurred from pulmonary embolism; since September 1945, 1 death was the result of pulmonary embolism, and 1 death followed a coronary occlusion.

Table 9.—*Previous Operation in 105 Benign Ulcers*

	Cases
Closure of perforated ulcer	5
Posterior gastroenterostomy	2
Posterior gastroenterostomy and cauterization of ulcer	1
Local excision of ulcer	1
Billroth 1	2
Pyloroplasty	1
Total	12

SUMMARY

Gastric ulcer occurs less frequently than duodenal ulcer, a proportion of 1 to 9. It is more common in men than in women, a ratio of 4 to 1. The majority of ulcers in this series occurred in patients in the fifth decade or later.

In this series of 131 patients operated on with a diagnosis of benign ulcer, there were 26 malignant ulcers, a diagnostic error of 19.8 per cent in those patients having operation. The incidence of error in the entire group of patients with gastric ulcers treated medically and surgically was 3.3 per cent.

Although the majority of malignant gastric ulcerations (61.5 per cent) are larger than 2.5 cm., small ulcers can be and often are found to be malignant. Malignant ulceration may occur anywhere in the stomach but is found more frequently in the prepyloric area, on the greater curvature and in the cardial area. All patients with ulcers arising in these areas should have surgical treatment without further observation or any attempt at medical treatment.

The treatment of all patients with gastric ulcer should primarily be surgical in character; especially should all chronic and recurring ulcerations be resected.

Postoperative results in general are excellent. Recurrent ulcer after resection has not developed in any case. The clinical results are excellent. Mortality can be kept at a minimum, as is illustrated by ninety-six consecutive resections without a fatality.

COMPLICATIONS OF PEPTIC ULCER

With Special Reference to Treatment

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Peptic ulcer has been the subject of discussion for nearly half a century. During that time noteworthy advancements in our knowledge have been made. There now is greater appreciation of the psychogenesis and the physiologic pathogenesis of peptic ulcer and thus a better understanding of the basically functional nature of the disorder. Since therapeutic empiricism ended about a generation ago, the principles of treatment have been practiced more in accordance with the scientific method. This applies especially to the complications of peptic ulcer wherein there exists the greatest general agreement as to the merits of medical or the necessity for surgical treatment. Present knowledge of the importance of nutrition, of mental and physical hygiene and a wider application of improved methods of medical and surgical treatment have brought about a relative but not an actual reduction in morbidity. Despite these advances there has not resulted a corresponding decrease either in the incidence of peptic ulcer or of its complications. Thus, in view of the currently high incidence and mortality, it is clear that there has been little real progress in the over-all solution of this problem. Thus abundant room remains for constructive work to be done and discussion must continue.

The complications of peptic ulcer are many and varied. They are the principal cause of mortality. They constitute the chief indications for surgery. A comprehensive clinical outline of the primary complications includes:

1. Perforation
   - Acute, into the peritoneal cavity
   - Subacute, with spontaneous closure by omental plug or adjacent viscus and the "formes frustes" type
   - Chronic penetration into adjacent viscera
2. Hemorrhage
   - Mild or moderately severe
     - Initial
     - Recurrent
   - Acute massive
     - Occurring before age 45
     - Occurring after age 45
3. Obstruction
   - Acute intermittent, produced by edema and spasm
     - Obstruction at the pyloric outlet
     - Hourglass obstruction in the body of the stomach
   - Chronic progressive obstruction resulting from cicatricial stenosis
     - Occurring at the pyloric outlet
4. Intractability
   - With reference to pain
   - With reference to disability
5. Malignant degeneration
   - Practically limited to gastric ulcer
     - Debatable

This outline does not include the conditions which complicate the complications. The most common secondary complications are malnutrition, anemia, shock, general and local peritonitis, wound infection with or without disruption and those occurring in the respiratory and vascular systems. It should be recalled here that two or more complications may exist simultaneously in a given case. In our recent series of surgically treated cases, multiple primary complications existed in 26 per cent.[1]

Prevailing opinion is that surgical treatment should be limited to the complications of peptic ulcer. Accordingly from a surgical point of view two groups of cases must be distinguished. The first group includes those complications characterized by insidious onset and chronic course in which the indications for surgical treatment are relative. The second group includes those cases which develop suddenly, threaten life and become surgical emergencies wherein the indications for surgical treatment are absolute. In accordance with this distinction, the present discussion will be confined to three common complications of peptic ulcer, namely, pyloric obstruction, acute hemorrhage and acute perforation.

PYLORIC OBSTRUCTION

Pyloric obstruction is a clinical term which refers to certain symptoms resulting from stenosis occurring in the region of the outlet of the stomach. In 118 deaths from peptic ulcer reported by Portis and Jaffe,[2] obstruction was responsible in 7.5 per cent of cases. Two types of obstruction are to be distinguished clinically. First, there is acute transitory functional obstruction which results from spasm or edema or both wherein the treatment is medical. Second, there is chronic pyloric obstruction resulting from organic cicatricial stenosis in which the treatment ultimately is surgical.

Some of the articles in this symposium are to be published in the *Archives of Surgery*.

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Thompson, H. L., and Prout, H.: Surgical Treatment of Peptic Ulcer, Arch. Surg. **54**: 390-413 (April) 1947.
2. Portis, S. A., and Jaffe, R. H.: A Study of Peptic Ulcer Based on Necropsy Records, J. A. M. A. **110**: 6-13 (Jan. 1) 1938.

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Pyloric obstruction resulting from spasm or edema usually is associated with an active ulcer at or near the pylorus. Intermittently, spasm and edema occur as a direct result of ulcer activity. The obstructive symptoms are of the nature of acute transitory phenomena which respond to gastric decompression, rest and antispasmodics. Recurrences depend on the failure to control ulcer activity. By frequently repeated activity or as a result of healing of the ulcer, this type may gradually merge into the cicatricial variety.

Chronic pyloric obstruction resulting from cicatricial stenosis by contrast is the result of the formation of an excess of scar tissue. It results from prolonged or repeated activity of the ulcer or secondarily to the coexistence of multiple ulcers on adjacent walls of the pylorus or duodenum. In a considerable proportion of cases, the primary symptoms of ulcer long since have vanished and the ulcer is found to have disappeared. Scarring results from nature's attempt at ulcer healing and stenosis occurs from normal contractility of scar tissue. Situated at its narrow outlet, stenosis interferes with the normal emptying mechanism of the stomach.

The symptoms which ensue from either type of obstruction are retention or vomiting of food with ultimate depletion of the general nutrition of the patient. Eventually the patient seeks relief because of his inability to retain or absorb food as reflected in terms of loss of weight and starvation.

The diagnosis of pyloric obstruction is based on a history of peptic ulcer. Analysis of the behavior of the ulcer is helpful in differentiating the two varieties of obstruction. Characteristic ulcer distress usually is present when an active ulcer is responsible for spasm or edema. In chronic obstruction resulting from cicatricial stenosis the distress may have diminished or disappeared as obstruction supervened. In either type, physical examination discloses evidence of loss of weight with depletion of adipose and muscular tissues and may reveal enlargement of the stomach in which peristalsis may be visible. Roentgenologic examination confirms the gastric enlargement and barium is retained to an abnormal degree. The acidity of the gastric content may be low. Finally, differentiation may not be possible until the therapeutic response to gastric decompression, physiologic rest and antispasmodics has been observed.

Treatment.—In obstruction of either type the stomach must be decompressed by continuous suction during a period of bed rest while attention is directed toward the correction of deficiencies induced by protein and chloride depletion, anemia, dehydration, avitaminosis and hyperazotemia. If anemia is severe the transfusion of compatible blood may be necessary. Dehydration, hypochloremia and hyperazotemia may be corrected by the daily administration of 2,500 to 3,500 cc. of isotonic solution of sodium chloride intravenously. If plasma proteins are reduced to the critical level of 5.2 Gm. per hundred cubic centimeters, amino acids should be substituted for one or more liters of saline solution. Vitamin deficiency may be combated by the administration of massive doses of ascorbic acid and vitamin B complex. Antispasmodics in the form of belladonna derivatives administered in physiologic doses usually prove effectual in stenosis resulting from spasm and edema but not in cicatricial stenosis.

In cases of chronic cicatricial stenosis surgical treatment ultimately becomes necessary. Before resorting to surgery preparation of the patient as just described is mandatory. Until recently the simple relief of the mechanical derangement by means of pyloroplasty or gastrojejunostomy was thought to be sufficient. While the immediate results of these palliative measures were excellent, too frequently recurrences of ulcer activity or the appearance of anastomotic ulcer marred the permanency of the result. For this reason recent practice has been to employ subtotal gastrectomy wherein the distal two thirds to four fifths of the stomach are removed. The amount of stomach which it is believed necessary to resect to be effectual varies considerably in different clinics. Occasionally when the ulcer is situated at the pyloric ring, local edema or penetration makes it impractical to dissect the ulcer sufficiently for safe removal. Under these circumstances it may be desirable not to remove the portion of the stomach immediately proximal to the pyloric ring. In such instances, in order to control the humoral phase of gastric secretion, removal of the mucosa from the retained pylorus is mandatory.

My practice has been to resect not less than the distal two thirds of the stomach, to restore continuity by the Hofmeister-Polya procedure and to complete the anastomosis anterior to the colon in the antiperistaltic manner. That is, the divided end of the stomach is closed with sutures for one fourth to one third its diameter and end to side gastrojejunal anastomosis is completed so that the efferent limb of the jejunum is attached to the greater curve of the stomach. If under preoperative decompression the obstructed stomach has not returned fully to its normal size, care must be used in the application of the Hofmeister modification. One must not close too much of the divided end of the stomach lest obstruction ensue when the organ ultimately contracts to its normal size. Colleagues and I favor the Hofmeister modification because in our experience it prevents untoward functional results in two respects. It diminishes the tendency to dumping of food from the stomach into the jejunum and it prevents excessive regurgitation of duodenal juices into the stomach. We obviate the fatal angle simply by sealing off the closed divided end of the stomach by suturing the afferent limb of the jejunum over it.

Section of the vagus nerves, as advanced by Dragstedt, is the most recent development in the surgical treatment of peptic ulcer. The procedure now is in the phase of critical analysis. Dragstedt[3] has advised combining vagotomy with gastrojejunostomy as a safer and less radical procedure than subtotal gastrectomy in the treatment of pyloric obstruction. While the initial results of this procedure appear to be good, it probably is too early to evaluate them fully. Moreover, it appears that this procedure might be utilized to best advantage by limiting its use to cases of active ulcer.

Thus, stenosis of the pylorus may result either from spasm and edema or from cicatricial stenosis. The two varieties may be distinguished on the basis of clinical course or by the response to medical treatment. In the acute transitory variety, other considerations being equal, continued medical treatment is warranted so long as the treatment relieves the obstruction. In chronic

3. Dragstedt, L. R.: Section of the Vagus Nerves to the Stomach in the Treatment of Gastroduodenal Ulcer, Minnesota Med. **29**: 597-618, 1946.

stenosing obstruction, surgical treatment ultimately is necessary and it should be applied before depletion of the nutritional state of the patient takes place.

HEMORRHAGE

Hemorrhage has been reported as responsible for approximately 18 per cent of deaths resulting from peptic ulcer. Peptic ulcer is the commonest cause of bleeding from the upper part of the gastrointestinal tract. Thus in our series [4] of 295 cases of hematemesis the underlying pathologic change was peptic ulcer in 48.1 per cent. It is not always possible during active bleeding to determine that ulcer is the source of hemorrhage because the condition of the patient may not permit the usual diagnostic procedures to be carried out. In practice, this inability to complete the diagnosis operates in favor of a continuation of conservative medical treatment even in cases wherein were ulcer known to be present surgical treatment might prove to be a life-saving measure.

Clinical Features.—Clinically it is necessary to distinguish two groups of cases. First, there is a larger group in which minor or moderately severe acute or intermittent bleeding occurs and in which there is either clinical response to conservative medical measures or a sufficient interval between recurrences that elective surgical treatment may be undertaken. Second, there is the smaller group in which acute, massive uncontrollable hemorrhage continues so long as conservative treatment is employed, and thus eventually the termination is fatal. This group logically comes within the province of surgery. In this group operation applied during active bleeding may prove to be a life-saving measure. The proper handling of severe hemorrhage requires the highest degree of clinical judgment, an acute sense of timing and operative skill and experience. Since this combination rarely exists in one person it is becoming the accepted view that all patients suffering from gross hemorrhage of the upper part of the gastrointestinal tract require the joint cooperation of an experienced internist and a surgeon sufficiently expert in gastric surgery that an extensive surgical procedure may be carried out under the most trying and difficult circumstances.

Diagnosis.—Since many patients have not previously consulted a physician and since hemorrhage often is the first indication of ulcer, diagnosis in a given case of bleeding from the upper part of the gastrointestinal tract may be a difficult problem. Reliance may have to be placed on such history as is obtainable from relatives or friends. The items most noteworthy in the history are ulcer-like distress, the presence or absence of previous hemorrhage and its severity. If the present bleeding is severe, physical examination may have to be limited to pulse taking determination of blood pressure and inspection and light palpation of the abdomen. In some instances as soon as the patient has recovered from shock, fluoroscopic examination without palpation as described by Hampton [4a] may lead to a definite diagnosis. The difficulties of this situation may lend support to Schindler's contention that gastroscopy should be performed early whereby a bleeding ulcer on the gastric side of the pylorus might be visualized. The laboratory procedures most indicative of the severity of bleeding are a complete blood count and a hematocrit reading.

Management During First Forty-Eight Hours.—In the initial management of bleeding the first essential is to form a quick, sound estimate of the amount of blood lost and of the general condition of the patient. In the absence of shock nothing more than quiet, rest in bed and close observation is needed. With rapid, weak pulse and cold, clammy skin, it is evident that shock is present or impending. Depending on their availability, fluids, as 5 per cent dextrose in isotonic solution of sodium chloride, blood plasma or compatible blood should be given intravenously. Since prompt restoration of blood volume is the primary indication, compatible blood must replace other fluids as soon as it is available. The once popular blood coagulants are of little or no value and now are outmoded. Sedation usually is needed to relieve restlessness and anxiety. Because morphine may aggravate vomiting or a damaged liver, if present, may not be able to detoxify it, the best opinion is that a barbiturate or some other alkaloid than morphine should be used.

The second stage of treatment usually begins twenty-four to seventy-two hours after hemorrhage has ceased, lasts until diagnostic procedures may be begun with safety and is a period of watchful conservatism. The question of appropriate diet is not within the scope of this paper except to mention that during the period of shock and vomiting, feeding is neither desirable nor possible. Moreover, a period of starvation after hemorrhage largely has been abandoned on the suggestions of Lenhartz,[5] Andresen [6] and Meulengracht.[7] Also it seems that a moderate position with reference to feeding such as that advocated by Bockus [8] conforms more nearly to the accepted methods of treatment of ulcer not complicated by bleeding.

In an effort to save the lives of a few patients who do not respond to emergency medical treatment, Finsterer,[9] Gordon-Taylor,[10] Allen,[11] Heuer,[12] Mathewson [13] and others have endeavored to establish principles for surgical treatment of acute massive hemorrhage from peptic ulcer. As the pioneer, Finsterer elaborated the rule that if operation is contemplated it must be performed within forty-eight hours of the onset of bleeding. This rule was based on his report that in fifty-two resections the mortality was 3.8 per cent. When operation was deferred until forty-eight hours had elapsed, his mortality rose to 30 per cent. No one else has been able to approach this low mortality, from which it is apparent that Finsterer applied operative treatment to all grades of bleeding from peptic ulcer. Allen has

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8. Bockus, H. L.: Gastroenterology, Philadelphia, W. B. Saunders Company, 1943, p. 607.

9. Finsterer, H.: Operative Treatment of Severe Gastric Hemorrhage of Ulcer Origin, Lancet **2**: 303-305, 1936.

10. Gordon-Taylor, G.: The Attitude of Surgery to Hematemesis, Lancet **2**: 811-815, 1935.

11. Allen, A. W.: Acute Massive Hemorrhage from the Upper Gastro-Intestinal Tract, Surgery **2**: 713-731, 1937.

12. Heuer, G. J.: The Surgical Aspects of Hemorrhage from Peptic Ulcer, New England J. Med. **235**: 777-782, 1946.

13. Mathewson, C., Jr., and Pinkham, R. D.: The Surgical Management of Acute Massive Hemorrhage from Peptic Ulcer, Northwest Med. **45**: 563-567, 1946.

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shown that age is the most important factor in mortality in acute massive hemorrhage. He believes that it is dependent on arteriosclerosis in the wall of the bleeding vessel whereby its power of contractility fails. By employing operation within seventy-two hours, by limiting its use to patients who are 45 years of age or over and by utilizing a special technic of exposure under ideal surgical surroundings, Allen reported 1 death in a series of 9 cases. While this mortality is high as compared with the results of medical treatment in general, there is no question but that in his and other like series a few patients have been saved by operation who otherwise would have died. Moreover, there are unquestionably a few patients in whom surgical treatment with direct control of bleeding is the only available means of saving life. The problem lies in the proper selection of those cases and in the technical execution of the appropriate operative procedure on patients who are being supported by blood transfusions before, during and after operation.

Indications for Treatment.—Unfortunately in the early stage of bleeding there is no positive means of distinguishing between patients who will respond to medical treatment and those in whom surgical intervention ultimately will be necessary. The best means at our disposal is close observation of the clinical course. During this period factors which must be taken into account as a basis for the selection or rejection of patients for surgical treatment are several:

Age of Patient: Allen and Benedict [14] having shown that the most important factor in prognosis of hemorrhage from duodenal ulcer was age, in patients younger than 45 years the mortality on conservative treatment was less than 5 per cent. In patients older than 45 years the mortality was 30 per cent. Thus, on the basis of rather general acceptance of the age criterion, in the former group conservative methods should be continued because a mortality of less than 5 per cent from surgical treatment cannot be expected. In the second group, however, on the basis of age alone, Finsterer's forty-eight hour rule should apply to good risk cases with the expectation of an improvement over the mortality of 30 per cent from conservative treatment. In patients operated on after forty-eight hours, however, Finsterer experienced a mortality of 30 per cent.

Advance Knowledge of Presence and Location of Ulcer: It is extremely helpful in these emergencies if previous examination has disclosed the presence and location of peptic ulcer. Otherwise it often is impossible to localize the lesion during active bleeding. While fatal hemorrhage from superficial ulcers in other locations does occur, the largest number result from erosion of the pancreaticoduodenal artery or one of its branches by penetrating ulcers on the posterior wall of the duodenum. Thus patients who are known to have chronic penetrating ulcers in this location and in whom gross hemorrhage occurs are likely candidates for immediate surgical treatment.

Initial or Recurrent Hemorrhage: It is important to recall that the initial hemorrhage may be the fatal one. Thus, in our recent series,[4] 55 per cent of patients were admitted for initial hemorrhage and the gross mortality in hemorrhage from peptic ulcer was 21.6 per cent irrespective of the severity of the bleeding. Most studies indicate that the danger of fatality increases with each hemorrhage, particularly if the patient eventually reaches the critical age.

Severity of Hemorrhage: Emergency surgery should not be applied to hemorrhage from peptic ulcer in patients who present nothing more than occult blood in the stool, blood-stained or coffee-ground vomitus or persistent secondary anemia. Surgical treatment is to be considered only in patients who manifest vomiting of bright or dark red blood, grossly blood-stained or tarry stools and who lose blood sufficient to produce weakness, pallor, dyspnea, tachycardia and decided fall in blood pressure. Estimations of hemoglobin and red blood cells are less valuable early indicators, the hematocrit reading being the best index of quantitative blood loss. If, after multiple blood transfusions, the blood pressure remains below 90 systolic and the pulse rate over 130, there is evidence of continued bleeding and reason for concern for the life of the patient. On the other hand, certain patients respond so promptly to treatment that usually they can be classed early with the more favorable group. In patients who are under conservative treatment two factors indicate that they belong to the less favorable group; namely, the failure early to manifest signs of cessation of bleeding or the evidence that bleeding has recurred. Thus the patient's response to treatment while he is followed by half-hourly checks on pulse and blood pressure is the best criterion for the selection of cases in which surgical intervention is indicated. Emphasis is placed on the necessity for selection within the forty-eight hour period because after that interval the mortality is as high as 30 per cent.

Associated Disease: As is well known, patients past 45 years of age frequently manifest arteriosclerosis, hypertension, coronary sclerosis and other systemic disease. If secondary anemia is superimposed on these conditions, patients become poor operative risks. Within reasonable limits the presence of associated disease is an absolute indication for early operation, since pronounced uncorrected secondary anemia with attendant anoxia, hyperazotemia and hypoproteinemia is more likely to induce a fatal termination than is the operation which is performed to control the bleeding.

The indications for surgical treatment after recovery from hemorrhage are relative and cases therefore require individualization. This phase of the problem will not be discussed here except to emphasize that mortality increases with succeeding hemorrhages and with each hemorrhage the indications for surgical intervention become more definite.

Principles of Surgical Treatment.—Since severe hemorrhage must be regarded as potentially fatal, continued bleeding despite transfusion is the prime indication for surgical intervention. While continued transfusion keeps the patient alive for an indeterminate period, it does not prevent him from becoming so depleted that he no longer is a good surgical risk. The earlier the application of surgery the better the prospect of recovery. Hence the decision for surgical treatment must be early, and once it is made, a departure from it should not be contemplated.

The surgical treatment of acute massive hemorrhage involves direct attack on the bleeding area in order to check the hemorrhage. It requires adequate exposure

14. Allen, A. W., and Benedict, E. D.: Acute Massive Hemorrhage from Duodenal Ulcer, Ann. Surg. **98**: 736-749, 1933.

of the ulcer so as to ligate the vessels before they enter the ulcer bed. Local, indirect or palliative attempts to control the hemorrhage are the least dependable. In duodenal hemorrhage the technic of Allen [11] is to divide the stomach through the distal third. The anterior wall of the stomach then is incised longitudinally in order to expose the ulcer and control the bleeding by direct digital pressure. When the hemorrhage is brought under control, the vessels are ligated beyond but not within the inflammatory area. The papilla of Vater is then visualized and a general survey is made to determine whether or not removal of the ulcer is a safe procedure. Subtotal gastric resection then is carried out according to the Polya or Billroth II method. In gastric ulcer it is necessary to open the anterior wall of the stomach in order to visualize and digitally compress the vessels. The vessels are ligated in normal tissue beyond the ulcer, after which one has the choice of proceeding with resection if the patient's condition permits or of closing the incision in the stomach, resection being completed at a subsequent stage.

Postoperative Care.—If subsequent to operation transfusions of blood are employed, it is necessary to check the Rh factor to avoid transfusion reaction. Fluid balance should be maintained and massive doses supplied of vitamins K, C and B. Frequent determinations of serum protein should be made lest deficiencies prevent healing of the wound and promote infection. When serum protein reaches the critical level of 5.2 Gm. per hundred cubic centimeters, replacement must be attempted by the administration of plasma or preferably amino acids.

Successful treatment of severe hemorrhage from peptic ulcer, therefore, involves competent clinical observation preferably on a cooperative medical and surgical basis. Abundant blood must be available for administration when necessary and the response to this treatment must be checked by half-hourly recording of pulse and blood pressure. If surgery is employed, success depends on experience in gastric surgery, wherein the procedure must be carried out with decision and facility.

ACUTE PERFORATION

Acute perforation of peptic ulcer results from extension of the ulcer process through all coats of the viscus, allowing escape of its content into the general peritoneal cavity. DeBakey [16] has shown that there is an apparent increase in incidence of this complication. In 33,439 collected cases occurring in the decade prior to 1940, he found 13.2 per cent of acute perforations. This complication occurs more commonly in males in the third to fifth decades, but has been reported in infants as young as 2 days old. I reported [17] 3 cases occurring in patients over 81 years of age.

As pointed out in a previous communication,[17a] acute perforation is the most sudden, the most severe and the most immediately disabling complication of peptic ulcer. In that study it was shown that the most characteristic symptom of acute perforation is pain. The onset of pain was sudden and intense, and, regardless of the time of the admission of the patient, it was localized in the upper part of the abdomen in 58 to 92 per cent of cases. When recorded, pain was referred to the shoulders in 89.8 per cent of cases. The most important physical finding was abdominal rigidity, which was described as extreme or boardlike in character, in 69.3 per cent of cases. Thus in the typical case of acute perforation of peptic ulcer, there does not exist a difficult diagnostic problem. In fact, the diagnosis in typical cases is so easy that an error is usually the result of inexperience, haste or oversight on the part of the examining physician. Nevertheless, despite the ease of diagnosis in typical cases, there exists a varying proportion of cases which in one or more respects are atypical and in which the establishment of a working diagnosis is difficult.

A point deserving of special mention in the clinical picture of acute perforation is shock. In the early stage of acute perforation pallor, cold moist skin and subnormal temperature often are referred to inclusively, without reference to the patient's blood pressure, as shock. I have shown [17] that whereas these superficial features of shock are present in 72.8 per cent of cases, its existence as confirmed by blood pressure readings regardless of the time of admission of the patient is present in only 19.2 per cent of cases. These observations have been confirmed by Soutter [18] and others.

Treatment.—Less controversy exists regarding the treatment of acute perforation than in any of the complications of peptic ulcer. In most quarters the diagnosis or suspicion of acute perforation is an absolute indication for surgical intervention. Thus closure of the perforation is indicated by common consent at the earliest possible moment. Except for the fact that closure interrupts continued peritoneal soiling, the mechanism by which it brings about recovery is not well understood. The observation that certain atypical forms of acute perforation including the "subacute" type of Lund,[19] the "intermittent leakage" type of Singer [20] and the "formes frustes" type of Singer and Vaughan [21] do well without surgical intervention has led to the concept of nonoperative treatment of perforated ulcer as reservedly advanced by Wangensteen [22] and by Taylor.[23] While Wangensteen emphasized the fact that there can be no debate about the advisability of closure of the perforation in early cases, he stated that patients in whom there are indications of but slight peritoneal soiling, signs of the "formes frustes" type of ulcer or diffuse generalized peritonitis of over twenty-four hours' duration may be treated best by continuous suction applied to an inlying duodenal tube. The Ochsner treatment of peritonitis as outlined by Taylor should be applied, including the regular administration of morphine, intravenous fluids and chemotherapy. The experience of Jackson and Metheny,[24] Barbour and

16. DeBakey, M.: Acute Perforated Gastroduodenal Ulceration: A Statistical Analysis and Review of the Literature, Surgery **8**: 852-884 and 1028-1076, 1940.

17. Thompson, H. L.: Acute Perforation of Peptic Ulcer: An Evaluation of Contributory and Exciting Causes, Surg., Gynec. & Obst. **64**: 863-871, 1937.

17a. Thompson, H. L.: Acute Perforation of Peptic Ulcer; An Evaluation of Diagnostic Symptoms and Signs, California & West. Med. **44**: 469-474, 1936.

18. Soutter, L.: Shock in Perforated Peptic Ulcer, Surgery **10**: 233-241, 1941.

19. Lund, F. B.: Subacute Perforation of the Stomach with Report of Three Cases, Boston M. & S. J. **152**: 516-518, 1905.

20. Singer, H. A.: Perforated Peptic Ulcer with Intermittent Leakage, J. A. M. A. **102**: 112-117 (Jan. 13) 1934.

21. Singer, H. A., and Vaughan, R. T.: The "Formes Frustes" Type of Perforated Peptic Ulcer, Surg., Gynec. & Obst. **50**:10-16, 1930.

22. Wangensteen, O. A.: Nonoperative Treatment of Localized Perforation of the Duodenum, Minnesota Med. **18**: 477-480, 1935.

23. Taylor, H.: Perforated Peptic Ulcer Treated Without Operation, Lancet **2**:441-444, 1946.

24. Jackson, L. E., and Metheny, B.: Thirty Cases of Perforated Peptic Ulcer, Northwest Med. **42**: 367-368, 1943.

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Madden [25] and Olson and Norgore,[26] however, indicates extremely high mortality following nonoperative treatment. From this it must be assumed that patients who are to receive this treatment must be selected with extreme and discriminating care. As pointed out by Allen, longer time must be allowed in order to evaluate this method of therapy.

Surgical Treatment.—There being general agreement on the value of surgical treatment properly applied, it appears that if further reductions in mortality are to be anticipated, close attention to the technical details must be observed.

Anesthesia: In patients who are in good condition spinal anesthesia generally is preferred. Paradural analgesia should prove satisfactory but its administration is time consuming, and with reference to perforated ulcer it has not had extensive consideration in the literature. In patients who are in poor condition, intratracheal inhalation anesthesia employing nitrous oxide or cyclopropane after induction with "pentothal sodium" is to be preferred. Curare assists in securing adequate relaxation without employing excessive amounts of the anesthetic agent. In patients who are in very poor condition, field block may be employed if surgery is to be utilized at all.

Abdominal Incision: Because serious and sometimes fatal infection or disruption of the wound occurs after operation for acute perforation, attention has been given in recent years to the type of abdominal incision.[27] Instead of the usual longitudinal incision oblique or transverse incisions have been utilized employing the muscle-splitting principle. The advantages claimed for such incisions are that the wounds are more easily closed, after which early ambulation may be employed with greater safety and with resulting shorter periods of hospitalization.

Peritoneal Culture: The taking of routine peritoneal cultures at the time of operation as recommended by many [28] yields interesting results from a clinical and prognostic standpoint. In general, positive cultures are obtained in about 50 per cent of cases, from which it may be deduced that in early operation negative cultures are not uncommon. The organisms most frequently encountered are the colon bacillus, the Streptococcus and occasionally the Staphylococcus. When positive cultures are obtained, the reported mortality ranges from 30 to 70 per cent.

Closure of Perforation: With reference to the method of closure of the perforation, it is generally agreed that the best procedure is simple closure reinforced by fixation of a tag of omentum over the suture line. Thus in our series [29] there was a difference in mortality of nearly 10 per cent between the groups of cases in which the closure was completed with and those without the tag of omentum. Special methods of closing the perforation have been devised.[30] In experimental work on dogs, Price and Tunnie found that living omental patches were highly resistant to digestion and infection and that they allowed gastric defects ample time to heal. Their results were not good when omental transplants bereft of blood supply were utilized. Without attempting to close the opening with sutures, Graham closes the perforation simply by tying a tag of living omentum over it. Baritell's method is similar. Gatch and Owen's method is to place a row of silk sutures in healthy stomach and duodenal tissue well beyond the limits of induration. After these sutures are laid down the walls are pulled together, thus deeply infolding the ulcer. The addition in conjunction with closure of such other procedures as pyloroplasty and gastrojejunostomy practically has been abandoned because of poor results from these procedures. In accordance with Graham's dictum, "the surgeon's responsibility is solely to save life and to do this with the most simple and minimal surgical procedure that will accomplish that end."

Numerous instances have occurred at operation in which the perforation already has been closed by a tag of omentum. It now is rather well known that in such instances it is not only desirable but imperative not to disturb the tag of omentum or to attempt to close the perforation with sutures.

Gastric Resection: Follow-up studies indicate that subsequent to suture of acute perforation of peptic ulcer recurrence of symptoms is frequent. In our series,[29] follow-up for periods up to eighteen months was possible in 41 per cent of cases. While 68 per cent of patients in this group claimed to have been completely relieved by operation, approximately 32 per cent required further medical treatment and 8 per cent further surgical treatment within that period. In an effort to improve the late results of surgical treatment of acute perforation certain writers, particularly of the European school, have advocated subtotal resection as a primary operation.[31] While these writers claim low operative mortality and superior end results, the best opinion in this country seems to be that gastric resection should be applied as a second stage procedure if needed when the patient is in better condition to withstand it.

Drainage of Peritoneal Cavity: Whereas in the past it was common practice to drain the peritoneal cavity, the practice has been abandoned almost entirely in favor of thorough aspiration at the time of operation and tight closure of the abdominal incision. Special attention was given to this point in my previous report.[29] In the group of patients in which drainage was not used the mortality was 14 per cent. In cases in which single drains were utilized the mortality ranged from 19.7 to 32 per cent, whereas in cases in which multiple drains were employed, the mortality was 34.4 per cent. Thus the lowest mortality resulted in those cases without drainage and the mortality increased in direct proportion to the number of drains employed.

The employment of sulfonamide compounds in the peritoneal cavity has received the attention of numerous

25. Barbour, R. F., and Madden, J. L.: Acute Gastroduodenal Perforation, Am. J. Surg. **59**:484-495, 1943.

26. Olson, H. B., and Norgore, M.: Perforated Gastroduodenal Ulcer, Ann. Surg. **124**: 479-491, 1946.

27. (*a*) Amendola, F. H.: A Simplified Approach for the Suture of Acute Perforation of Peptic Ulcer, Surg., Gynec. & Obst. **64**: 76-77, 1937. (*b*) Gatch, W. D., and Owen, J. E.: The Technique of Closing Perforated Ulcer of the Duodenum, Ann. Surg. **105**: 750-757, 1937. (*c*) Griswold, R. A., and Antoncic, R. F.: Perforated Peptic Ulcer, ibid. **113**: 791-801, 1941. (*d*) Hartzell, J. B., and Sorock, M. L.: Acute Perforated Peptic Ulcer: Simple Closure Through a Short Transverse Incision, Surg., Gynec. & Obst. **69**: 669-670, 1939.

28. (*a*) Berson, H. L.: Acute Perforated Peptic Ulcer, Am. J. Surg. **56**: 385-394, 1942. (*b*) Graham, R. R., and Tovee, E. D.: The Treatment of Perforated Duodenal Ulcer, Surgery **17**: 704-712, 1945. (*c*) Griswold and Antoncic.[27c] (*d*) McNealy, R. W., and Howser, J. W.: Perforation in Peptic Ulcer: A Critical Review of Seven Hundred Cases, J. Internat. Coll. Surg. **5**: 115-124, 1942.

29. Thompson, H. L.: Acute Perforation of Peptic Ulcer: Immediate and Late Results in Five Hundred Cases, J. A. M. A. **113**: 2015-2018 (Dec. 2) 1939.

30. (*a*) Baritell, A. L.: Perforated Gastroduodenal Ulcer, Surgery **21**: 23-33, 1947. (*b*) Gatch and Owen.[27b] (*c*) Graham and Tovee.[28b] (*d*) Price, P. B., and Lee, T. F.: Use of Omentum to Close Perforations of the Stomach, Arch. Surg. **50**: 171-173 (March) 1945.

31. Judin, S. S.: Partial Gastrectomy in Acute Perforated Peptic Ulcer, Surg., Gynec. & Obst. **64**: 63-68, 1937. Sandberg, I. R.: On the Treatment of Perforated Gastric and Duodenal Ulcer, Acta chir. Scandinav. **93**: 467-482, 1946. Strauss, A.: Primary Gastric Resection for Perforated Gastroduodenal Ulcer, Ann. Surg. **120**: 60-65, 1944.

writers.[32] While at the time of their writing certain authors were favorably impressed, convincing statistical proof was not adduced by any of them, and some writers stated that they were "not impressed" by their use. While it is difficult to check on this point in the literature, my feeling is that the practice probably has been abandoned almost entirely in favor of parenteral administration of sulfonamide compounds and antibiotics before and soon after operation.

Wound Closure: Because of the frequency with which wound infection and wound separation is reflected in terms of mortality, attention has been given not only to the type of incision but also to the method of wound closure. Meade[33] found that in cases in which all layers of the wound except the skin were closed with surgical gut, there was primary wound healing without drainage in 74 per cent. While there was little or no correlation between the amount of intraperitoneal fluid and the interval between perforation and operation, the character of the fluid was important to the extent that when the fluid was frankly purulent primary healing occurred in only 50 per cent of cases. Barbour and Madden[25] usually close the wounds in layers without drainage, using black silk, but occasionally they employ through and through sutures of heavy silk. Black and Blackford[31] have advocated a combination of layer closure with surgical gut reinforced by through and through nonabsorbable sutures. In a recent study we[1] found that in 71 cases in which layer closure of the wound with surgical gut, cotton or steel wire was utilized there was a mortality of 9.8 per cent. In 29 cases in which through and through closure of the wound with wire, cotton or silk was employed, the mortality was 27.5 per cent. Through and through closure, however, was employed in cases which seemed at the time of operation to have a poor prognosis.

Postoperative Care.—Postoperative care is extremely important. Continuous gastric suction should be employed until danger of leakage at the point of closure is passed, the possibility of obstruction is eliminated and normal peristalsis ensues. Intravenous administration of fluids consisting of 5 per cent dextrose in isotonic solution of sodium chloride or water in sufficient amount that the patient's urinary output is at least 1,500 cc. per day should be utilized. Amino acids should be administered to the older patients, those in poor nutrition, those with bacterial peritonitis and when hypoproteinemia is present. Sulfadiazine should be administered intravenously along with sufficient sixth-molar sodium lactate solution daily to maintain urinary alkalinity and until the patient is free of signs of bacterial peritonitis or until he can take the drug orally. Penicillin may be employed if the bacterial culture indicates that it should be used. Morphine is essential but should be used with discretion lest fluids collect in the lungs and bronchi. In fact, special attention must be paid to the patient's respiratory and circulatory systems. The patient's position should be changed at least every two hours, and he should be encouraged to exercise his legs while in bed. Early ambulation should be employed except when bacterial peritonitis is present. In the first twenty-four to seventy-two hours deep inhalations of carbon dioxide at one-half to two hour intervals should be employed and coughing should be encouraged. Tracheal aspiration by catheter or bronchoscope should be used to remove bronchial exudate if the patient cannot expectorate it.

Mortality.—As compared with fifty years ago there has been a decided reduction in mortality in the surgical treatment of acute perforation of peptic ulcer. According to DeBakey[16] between the years 1897 and 1901 mortality ranged from 48 to 91 per cent. While some authors reported extremely low mortality rates,[35] the results of operation in large general hospitals in the United States are fairly uniform. Thus in 1939,[29] I reported from the charity services of Los Angeles hospitals a mortality in surgically treated patients of 28.7 per cent. Recently in material from the same source,[1] the mortality was 15 per cent. As pointed out by Baritell,[30a] there is no doubt but that if it were possible to employ the ideal procedure in every case the mortality could be reduced at least by 10 per cent.

Late Results: There is a general feeling that from 50 to 60 per cent of patients are relatively free of symptoms after suture of an acute perforation of peptic ulcer. Thus Wakeley[36] found that 44 per cent of 103 cases were able to perform military service. Williams,[37] reporting a follow-up of 100 cases from the Boston City Hospital, reported excellent to good results in 55 per cent of cases. On the other hand, Houston[38] noted recurrence of symptoms in 62 per cent of cases and found that 20 per cent of patients required further surgical treatment. Harrison and Cooper[39] reported persistent ulcer symptoms in 82.5 per cent and Estes and Bennett[40] in 94.4 per cent. With wide variations reported in the percentages of beneficial results as compared with the complete relief of symptoms, it seems best to agree with the statement of Black and Blackford[31] that the patient with ulcer after perforation should be considered in the same light as other patients with peptic ulcer.

CONCLUSION

An outline of complications of peptic ulcer has been presented. The incidence, clinical features, diagnosis and indications for conservative and surgical treatment have been discussed. Elective surgery having been discussed by other collaborators in this symposium, special attention has been directed toward the surgical treatment of pyloric obstruction, acute hemorrhage and acute perforation into the free peritoneal cavity. While indications for surgical treatment in these complications range from relative to absolute, attention has been directed toward the absolute indications wherein surgery is applied as a life-saving measure. Only by frequent and recurring discussion is there hope of reduction of the persistently high mortality in complications of peptic ulcer.

32. Griswold and Antoncic,[25c] Harvey, H. D.; Meleney, F. L., and Rennie, J. W. R.: Peritonitis: III. Studies in Peritoneal Protection with Particular Reference to the Action of Sulfonamide Drugs in Experimental Peritonitis, Surgery **11**: 244-260, 1942. McCabe, E. J., and Mershemer, W. L.: Acute Gastroduodenal Perforation, Am. J. Surg. **62**: 39-49, 1943. Timoney, F. X.: Perforated Peptic Ulcer, Ann. Surg. **117**: 710-717, 1943. O'Donohue, J. B., and Jacobs, M. B.: Acute Perforation of Gastric and Duodenal Ulcer: A Study of Two Hundred Consecutive Operated Cases, Illinois M. J. **81**: 62-69, 1942. Paletta, F. X., and Hill, W. R.: Acute Perforated Gastric and Duodenal Ulcer, Surgery **14**: 32-37, 1943.

33. Meade, R. H.: A Study of the Healing of Abdominal Operative Wounds Following Closure of Perforated Ulcers of the Stomach and Duodenum, Surgery **14**: 526-530, 1943.

34. Black, B. M., and Blackford, R. E.: Perforated Peptic Ulcer; Review of Ninety-Six Cases, S. Clin. North America **25**: 918-937, 1945.

35. Baritell,[30a] Graham and Tovee.[29b]

36. Wakeley, C. P. G.: Late Results of Perforated Peptic Ulcer, Lancet **1**: 11-12, 1944.

37. Williams, A. T.: Perforated Peptic Ulcer. A Follow-Up Study of One Hundred Cases, New England J. Med. **230**: 785-790, 1944.

38. Houston, W.: The Aftermath of Perforated Peptic Ulcer, Brit. M. J. **2**: 220-223, 1946.

39. Harrison, C., and Cooper, F. W.: Immediate and Late Results of Perforation of Peptic Ulcer, Ann. Surg. **116**: 194-199, 1942.

40. Estes, W. L., and Bennett, B. A.: Acute Perforation in Gastroduodenal Ulceration with Special Reference to End Results, Ann. Surg. **119**: 321-341, 1944.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FELDMAN, RAFSKY, WEINGARTEN AND KRIEGER, WALTERS, NEIBLING, BRADLEY, SMALL AND WILSON, MARSHALL AND WELCH, AND THOMPSON

DR. LESTER R. DRAGSTEDT, Chicago: The discovery by Dr. Wangensteen and his associates that if an excessive, continuous secretion of gastric juice is produced in experimental animals peptic ulcers regularly appear in the stomach and duodenum is of great significance in the clinical problem. Evidence is gradually accumulating that a similar, abnormally large secretion of gastric juice is characteristic of the empty stomach of patients with duodenal ulcers. The control studies of Dr. Levin are especially valuable in this connection. We have found that this excessive secretion of gastric juice is neurogenic in origin and is abolished by complete division of the vagus nerves to the stomach. So far, we have not encountered a patient with duodenal ulcer whose excessive gastric secretion was on a hormonal or chemical basis. The observation that the excessive gastric secretion which occurs in patients with ulcer is neurogenic in origin and is abolished by gastric vagotomy constitutes the physiologic basis for this operation in the treatment of peptic ulcer. The cause of the secretory hypertonus of the vagus nerves in this disease is still obscure. The observations of Dr. Feldman are here of great interest. It may well be that long continued mental effort and strain, with perhaps an emotional content, may produce this hypertonus of the vagus nerves and that it is in this way that the central nervous system plays its role in the disease. During the past year, I have on several occasions heard Dr. Walters tell of his experience with the type of gastric vagotomy that he employs in the treatment of peptic ulcer, and I am convinced now that he does not like the operation that he has been performing. I must confess that I agree with him—I do not like it either. In my experience, a complete division of the vagus nerve fibers to the stomach can only be secured if these nerves are attacked along the lower part of the esophagus. The operation which Dr. Walters is performing represents an attempt to secure a complete vagotomy by cutting these nerves along the stomach. This is a procedure similar to that described by Stierlin and Schiassi many years ago and is almost certain to be incomplete. I should like to emphasize that in our hands, the operation is a supradiaphragmatic section of the vagus nerves, both when the operation is made through the abdomen and when it is made through the left side of the chest. In each instance, the vagus nerves are divided along the lower part of the esophagus, approximately 5 cm. above the stomach. The clinical results obtained have been more favorable than those secured by any other method with which I am familiar.

DR. SARA M. JORDAN, Boston: There is need for this symposium for three reasons: (1) because of the use of enterogastrone, (2) because of the use of vagotomy and (3) because this question of operation on all gastric ulcers has again arisen and should be discussed. The American Gastro-Enterological Association now has a committee to study the problem of ulcer nationally, and I am authorized by Dr. Harry Bockus, who has just supplanted Dr. Walter Palmer as our new president, to state that two subcommittees are being formed to study both vagotomy and enterogastrone intensively throughout the country. With regard to the question of whether all gastric ulcers should be operated on, Dr. Marshall hinted that there might be disagreement in our clinic on this point. The disagreement is more apparent than real because we are all gastroenterologists and surgeons intensely interested in the effort to improve the detection of carcinoma of the stomach and to obtain the earliest surgical treatment possible in cases that are malignant or can justifiably be suspected of malignancy. The arguments for the use of surgery in all gastric ulcers are that with increased skill of experienced surgeons and resultant decreased mortality surgical treatment is much safer. Dr. Marshall's latest figures would have convinced you of the improved risk, and that is, I believe, common experience, that subtotal gastrectomy now has a very low mortality. This, of course, was not true in the days when we struggled to save gastric ulcers from surgical treatment, if we thought that they could possibly be benign. Furthermore, our experience shows that there is a definite incidence of cancer, of change to cancer, in the unhealed and in the recurrent ulcer, and both surgeons and gastroenterologists have no question of that. In our records we have cases in which there was a presumably benign ulcer many years before the patient had a recurrent lesion in that same area which was malignant. That original ulcer healed and the patient was well in the meantime, but in that same area there was a return of the lesion which was then malignant. These cases indicate, we believe, that with recurrence there may be a change from benignity to malignancy. Against the idea that all gastric ulcers must be resected at once, we gastroenterologists ask ourselves, Shall gastric physiology be—I was going to use the word "sacrificed," but I think that the surgeons would object to that word—but shall it be mutilated in any way in all stomachs where there is a gastric ulcer? Shall this occur even though in our experience of twenty-four years (and many of our cases we have followed for a good many years) we find many instances of healing of the original ulcer and no recurrence throughout twenty-four years?

DR. RALPH COLP, New York: Our results at the Mount Sinai Hospital, New York, were comparable to those of the Mayo Clinic. Our first 33 cases were transthoracic; the remaining 57 cases were intra-abdominal. We are convinced that the vagi may be effectively visualized and adequately divided by this approach. Moreover, it affords an opportunity to verify the local pathologic changes and perform a thorough exploratory examination. The insulin test revealed that in the majority of patients the nerve had been completely severed. There appears to be no relationship between the completeness and incompleteness of the vagotomy and the relief of pain, the acidity figures, the motor disturbances and the other complications. A synopsis of 21 cases of uncomplicated chronic duodenal ulcer which were intractable to medical treatment, many with hemorrhage but none with demonstrable obstruction, shows that the ulcer pain was eliminated in all but 1, which required operation two months later, and in spite of a negative insulin reaction on two occasions, an active ulcer on the posterior wall of the duodenum was present. Motor disturbances were the general rule, but they were so severe in 4 that these patients begged for relief because of epigastric distress, vomiting and the belching of foul gas. Exploration revealed that the ulcer had healed, that the pylorus was patent and that the stomach was dilated. The symptoms were relieved by a subtotal gastrectomy in 3 cases, and a gastroenterostomy in 1. Because the results were so unpredictable and variable, we have discontinued vagotomy as a sole procedure in the treatment of duodenal ulcer. We feel that vagotomy in gastric ulcer should never be done because it is impossible to tell whether an ulcer is benign or malignant. Subtotal gastrectomy removes the lesion, and the results over the past twenty-five years have been so excellent that we see no reason to discard it. A series of patients with duodenal ulcer were treated by combined operation. If gastric atony is so common following vagotomy, would not the best interests of these patients be served by the performance of a routine gastroenterostomy in vagotomy cases? We are doing gastroenterostomy and vagotomy in a control series of 25 cases, 19 having been done to date, many in old patients we deemed not suitable for subtotal gastrectomy. The motor difficulties in these cases have been transient. If the follow-up results over the next five to ten years reveal a lowering of the incidence of gastrojejunal ulcers following gastroenterostomy, then subtotal gastrectomy as a procedure for duodenal ulcer will probably be discarded.

DR. ASHER WINKELSTEIN, New York: I have been studying the nocturnal gastric secretion since 1928. In 1931 I reported that the gastric secretion during the night was high in volume and acidity in patients with duodenal ulcer as contrasted with normal persons. All the methods used to control the night acidity before retiring and during the day failed. I therefore proposed at that time the continuous intragastric drip therapy which does control the night acidity. Since then many other observers, namely, Norporth, Henning, Chalfen, Dragstedt and Valdex, have confirmed these findings. Recently there has arisen the dissenting voice of Dr. David Sandweiss, who claims that normal persons and patients with ulcer have a similar nocturnal secretion. We disagree with Sandweiss' findings for

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the following reasons: 1. His test supper was too heavy and too stimulating. 2. He utilized ambulatory patients with very mild ulcer for study. 3. In his normal controls he upset by using continuous suction, the duodenal regulatory inhibitory mechanism. We are therefore greatly pleased to hear today that this excellent study by Dr. Ervin, from Dr. Walter Palmer's clinic, once again confirms our original findings, an increased volume and acidity in patients with duodenal ulcer as contrasted with normal persons. The low acidity which is found so frequently in gastric ulcers is probably due to the associated gastritis occurring in the secretory area of the stomach. I have demonstrated that the best, in fact perhaps the only, medical method to control completely the night acidity is my continuous intragastric drip therapy with milk and calcium hydroxide solution or aluminum hydroxide gels. Enterogastrone in the dosage used does not control gastric acidity. Recently in a series of studies I found that the Co Tui protein hyperalimentation therapy also does not control the night acidity. Lester Dragstedt has demonstrated that surgically the best method of controlling the night acidity is complete bilateral vagotomy. We have studied the results of vagotomy and found that vagotomy alone lessens the night acidity and the volume by 50 per cent, but gives no night achlorhydria. The combination of gastroenterostomy and bilateral vagotomy gives 53 per cent night achlorhydrias. The combination of subtotal gastrectomy and bilateral vagotomy gives the startlingly good figure of 94 per cent night achlorhydria and 83 per cent day achlorhydria. Since we believe in the following dicta, "no acid—no ulcer," "control acid—healing of ulcer," "no postoperative acid—no recurrent ulcer," we advocate, medically, the control of the harmful night acidity secretion by the continuous intragastric drip therapy, and, surgically, the control of the harmful night and day acidity by the combination of subtotal gastrectomy and bilateral subphrenic vagotomy.

DR. H. B. STONE, Chicago: I fear that we cannot make a comparable report of such an admirably low mortality rate as Dr. Marshall has indicated. Our mortality rate would be somewhat higher than his. The most striking single figure reported by Dr. Marshall has nothing to do with the things I have just enumerated. It concerns the fact that in approximately 130 cases diagnosed by the most careful study as presumably benign gastric ulcers, operation has demonstrated actually that pathologically malignant lesions were present, and that, I take it, is the central theme of the paper of Dr. Marshall and the most important message that he brought to us today. I should like to report a single case which bears on this same problem. Some fifteen years ago, I operated on a man who was then 33 years old. I resected a small prepyloric ulcer, resection being inadequate as compared with present day standards. My diagnosis was a simple ulcer, and that was the laboratory report. In about ten months the patient began to show failing health, and on roentgen study it was apparent that he had been the victim of malignant extensions. Then the pathologist hunted up the block of tissue. Further sections were cut, and this time a clearcut diagnosis of carcinoma was made. I cite that case as to me being more significant than mere figures. Here was a patient who presented a lesion that a reasonably experienced surgeon on examination accepted as being benign, and a good pathologist on primary section accepted as being benign, yet the clinical course and the later pathologic investigation proved it to be unequivocally a malignant lesion. I agree with Dr. Marshall that there are very few cases of gastric ulcer which require total gastrectomy for the adequate removal of the lesion. I hope that we will adopt the general use of the term "partial gastrectomy" for this type of operation. Dr. Marshall did not comment on the type of restoration that he used after gastric resection, and I take it from other publications from the Lahey Clinic that they are utilizing the antecolic Polya type of operation, or modifications of the Polya repair. That is our procedure, and we find it more satisfactory than any other method of reconstruction. The main point in Marshall's paper, is that there is grave danger of malignancy in supposedly benign gastric ulcers. The unavoidable lesson may be stated thus: Whereas duodenal ulcer is properly regarded as primarily best treated by medical measures, with certain exceptional cases requiring surgical handling, gastric ulcer should be considered primarily a surgical problem, with certain exceptional cases suitable for medical treatment.

DR. J. WILLIAM HINTON, New York: In principle, I agree with every point Dr. Marshall has made. I have, in the two clinics with which I have been associated—one for twenty years and another for ten years—followed the principles in every detail which he outlined and the points which he has enumerated. Within the past two years I have come to the conclusion which Dr. Marshall has stressed, that in many gastric lesions one can never be sure that they are benign, and perhaps more should be operated on. Of course, the problem which we all have is that of being accurate in our diagnosis. It is obvious from his report that 33 per cent of all the so-called ulcers had actually early malignancy. For the past few months we have been interested in trying to diagnose some of these lesions by gastric lavage, and Dr. McKenzie has used the technic of Papanicolaou, which he used for uterine cancer, and has applied it to washing from the stomach to get malignant cells, and to date we have had 39 cases. Dr. McKenzie knows nothing about the patients or their history; he is merely giving the gastric washings. For those patients he has reported twenty-four positive results, and of the twenty-four positive results, twenty-two were correct and two were in error. He reported fifteen negative results, and of these eight were incorrect. That is not bad, because those were cases of scirrhous carcinoma. There were no ulcerating lesions, and it was obvious that one could not get malignant cells from the gastric lavage. I think it is even more important that Dr. McKenzie, who is a gynecologist, had never seen cells of the gastrointestinal tract, and I think it possibly offers some help in making the early diagnosis in the debatable gastric lesions.

DR. H. C. SALTZSTEIN, Detroit: We have had through the course of a number of years a rather large series of dogs with Mann-Williamson ulcers which either were followed as controls with no medication or were given various medications, in the hope of modifying the course of the ulcer. We tried to see what effect a vagotomy would have on these dogs. A series of 28 control dogs survived the Mann-Williamson operation an average of seventy-one days. Twelve dogs who had vagotomy plus Mann-Williamson operation survived a much shorter period of time; that is, fifty-one days following the Mann-Williamson operation and forty-four days following vagotomy. (The vagotomy was usually, but not always, done after convalescence from the Mann-Williamson operation). Of the controls, 100 per cent showed ulcer at autopsy and 72 per cent of these died of perforation with peritonitis. Of the vagotomized animals, 6 of the 8 who lived more than one month after the Mann-Williamson operation had jejunal ulcers. An inflammatory reaction of varying severity was found in the upper part of the jejunum in 7 of these 12 dogs. There was no correlation with survival time. If it should be found to exist in patients after vagotomy, it might explain the diarrhea which at times follows this surgical procedure. Gastric dilatation was present in 9 of the 12 Mann-Williamson dogs who had vagotomy. This occurred more frequently in dogs with short survival time, but 1 animal showed decided gastric dilatation one hundred and eighty-two days after vagotomy and the Mann-Williamson operation.

DR. OTTO DE MUTH, Vancouver, British Columbia, Canada: I thank you for the Canadian surgeons who have been privileged to attend this magnificent session of the centennial of the American Medical Association. I am sure we have all enjoyed the high standard of the scientific papers that have been presented. We have learned much from our distinguished American confreres. The psychiatric, medical and surgical treatment of peptic ulcer has one objective: the lowering of hydrochloric acid in the stomach. This, to my mind, is attacking the problem of peptic ulcer from only one side. I would suggest that we treat peptic ulcer with the most effectual alkaline juice of the gastrointestinal tract—pancreatic juice. Pancreatic juice is capable of neutralizing the highest concentration of hydrochloric acid that the stomach is able to produce. Professor Ivy, in the December issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, suggested that in peptic ulcer we want to raise

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the resistance of the mucous membrane of the stomach, duodenum and jejunum. By accident and observation have the great discoveries of x-ray, insulin and penicillin been found. So, too, we have found by sectioning the sphincter of Oddi to cure biliary dyskinesia and to prevent recurrence of gallstones—in the common duct, the release of pancreatic juice cured duodenal ulcers in 3 of our patients who were suffering from both lesions, and 1 of our patients had an anastomotic ulcer. This work is confirmed by the findings of the Mayo research staff. The Mann-Williamson operation on dogs proved that peptic ulcers occurred down to the entrance of pancreatic juice into the intestine. Likewise, in the Whipple operation, in which the stump of the pancreas, with the shortened duct of Wirsung, is anastomosed to the jejunum, there is not recorded in the literature a single case of peptic ulcer occurring at this site, where pancreatic juice enters the small intestine. Peptic ulcers will not occur and will invariably heal in the presence of pancreatic juice. Treat peptic ulcers with nature's alkaline pancreatic juice.

DR. RUSSELL S. BOLES, Philadelphia: We have passed through the eras of gastroenterostomy and the various stages of gastric resection, both for gastric and duodenal ulcer, only to be disillusioned, except possibly in the case of resection for gastric ulcer. The local results from the latter are good. What the systemic results may be still remain to be determined. We are now witnessing the dawn of vagotomy and regretfully must admit there are many clouds on the horizon. First, we would like the gentlemen concerned to make up their minds whether the operation of vagotomy should be done above or below the diaphragm. Anatomic studies by different persons do not agree on which should be the best approach. There is something wrong somewhere in this picture. Gastroenterostomy is now being advised as a supplementary operation to vagotomy. I cannot understand by what magic all the previous hazards of gastroenterostomy will suddenly be dissolved by doing a vagotomy. Certainly it will not be because either operation produces a state of anacidity. We know now, of course, that anacidity is not achieved by a gastroenterostomy, though such was the original intention of the operation, and there is already sufficient evidence that in most cases even vagotomy is not likely to effect a permanent state of anacidity. What then is to be expected from gastroenterostomy under these circumstances? I can only foresee all the direful things that happened previously and that dictated the abandonment of this operation. If vagotomy is being done to reduce acidity, it would be interesting to know how one is going to explain the logic of deliberately reducing pancreatic secretion, which we have been told vagotomy does do, when this secretion is one of nature's most effective means of neutralizing excess acidity. I would suggest that surgeons declare a moratorium on vagotomy for a five year period. There have been more than enough of these operations done by now to serve for follow-up study to determine just how valuable the operation may be. I must express disappointment in the emphasis given to the old theme song "No acid, no ulcer." I do hope that eventually we will develop a little more breadth of vision about the etiology of ulcer. For fifty years we have been approaching ulcer, medically and surgically, on the assumption that it is caused by acid. Surgeons and physicians alike cannot say that they have achieved any real permanent cure for ulcer on this basis. As long as we have not solved the problem of ulcer in the past fifty years by this method of approach, it does seem time that some new aspects of it should be more seriously considered.

DR. RICHARD LEWISOHN, New York: Many members of this audience will remember the battle which centered around partial gastrectomy versus gastroenterostomy in the treatment of duodenal ulcers about twenty years ago. It took many years to settle this controversy in favor of gastric resection. Dr. Dragstedt has reopened the question of the surgical treatment of peptic ulcer by attacking the vagus nerve transthoracically, or, more recently, transperitoneally. Dr. Dragstedt deserves great credit for his careful experimental work which led him to use vagotomy in patients. Just as Blalock and Taussig did extensive work on animals before they introduced their new methods into clinical surgery, Dragstedt prepared himself thoroughly before he attempted vagotomy in patients. We should reserve final decision of the value of Dragstedt's operations for two reasons: One, vagotomy is followed in many cases by marked interference with gastrointestinal motility, and secondly, follow-ups seem to indicate that free acid in the fasting contents is still present in the stomach in a considerable number of cases, thus opening the door to persistence or recurrence of ulcers. Pronounced atony, sometimes extending over many weeks, is observed in many cases. I have always considered pronounced atony as one of the most dangerous complications following abdominal operations. This postoperative complication should not be taken lightly. Postoperative anacidity is the best safeguard against recurrent ulcer. For this reason, the follow-up results of subtotal gastrectomy for gastric ulcer are perfect. However, in many cases of gastric resection for duodenal ulcer, free acid is still present not only immediately after the operation but in late follow-ups. In this latter group the incidence of recurrent ulcer is about six per cent. If vagotomy would establish a permanent postoperative anacidity in every case, this new operation would be on much safer ground. However, that does not seem to be the case. For this reason I should like to warn against combining vagotomy with gastroenterostomy. It has been stated that gastroenterostomy is a disease, not an operation. I wonder whether vagotomy plus gastroenterostomy will give better end results than simple gastroenterostomy and will prevent the occurrence of gastrojejunal ulcers. It may not be advisable to combine vagotomy with partial gastrectomy for duodenal ulcer, as the atony may represent a serious postoperative complication. However, in a small group of recurrent ulcers following gastric resection a transthoracic or transperitoneal vagotomy may represent a good method.

DR. WALTMAN WALTERS, Rochester, Minn.: The completeness of my method is demonstrated by a motion picture which was shown a number of times at sectional meetings of the American College of Surgeons the past year. Moreover, microscopic examination of the resected portion of tissue should be made to confirm that it is nerve tissue. In most of my cases there have been two distinct nerves, in a few three and in some four. In about 8 or 10 per cent, multiple branches were disclosed in the anatomic dissections. I cannot refrain from commenting on Dr. Boles' discussion because I think we should not forget that in most instances the patients with duodenal ulcer who are referred by the internists to the surgeon for operation are those who have not responded adequately to a medical regimen and who must have relief from either pain, obstruction or hemorrhage. These patients make up that group in which surgical procedures have been carried out by my colleagues and myself and, in those cases as well as similar cases in which other surgeons operated, as has been shown in thousands of instances, definite results have been recorded after the operation of partial gastrectomy, and the results have generally been very good. We should not overlook that fact, because to those patients such an operation, which is now performed with such a low mortality rate by all surgeons of experience is really a life-saving measure. We must not forget, either, that the operation of partial gastrectomy in the treatment of chronic, recurring gastric ulcer that has not responded to a medical regimen has given some of the best results of any method of therapy. The risk is low and recurrence may never take place, I have, myself, never seen recurrence of an ulcer in cases in which resection has been done for a gastric ulcer alone and in which the pylorus has been removed with at least half of the stomach and the ulcer. We should remember that only about 2 per cent of patients get recurring ulcer after partial gastrectomy for duodenal ulcer, and practically never is there a recurrence when the operation is performed for gastric ulcer. But in the 2 per cent of patients who have recurrences of duodenal ulcer after partial gastrectomy, vagotomy will frequently cause healing of the ulcers. Dr. Dragstedt's studies are fine contributions to the surgery of recurring ulceration. Differences of opinion are a healthy thing. However, we must be sure that we are talking about similar groups of cases, that the lesion exists, that a complete division of the vagus nerve is made and that an accurate follow-up is carried out.

ALLERGY FROM THE PERSPECTIVE OF GENERAL MEDICAL PRACTICE

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Clinical allergy has been recognized for thirty years. Before then asthma, hay fever, urticaria and eczema were considered somehow related, but the demonstration that all these were manifestations of a single underlying disorder, then called "protein sensitization" or "anaphylaxis," was an advance in medical progress. Not only was this type of human hypersensitiveness demonstrated by means of a positive reaction to a cutaneous test but this test presumably indicated the actual substance, such as a particular food, pollen or animal dander, that caused the symptoms of which the patient complained. This dramatic revelation soon took hold on medical imagination.

During the first fifteen years the cutaneous test was the keystone to the practice of allergy Many hundreds of allergens were found to produce positive reactions, and there was continual search for new ones. Foods, plants, hair from native and wild animals and bacteria were extracted in increasing numbers until as many as seven hundred tests were given to some patients whose only complaint may have been nasal stuffiness or urticaria.

The process of manufacture of these allergens and their application was time consuming and required particular knowledge and technics so that before long allergy became a specialty. Its immunologic aspects invited research, from which important discoveries evolved. Like other specialties, the study of allergy drew away from general medicine. A phraseology of its own was developed, with such words as "atopy," "atopic reagin," "skin sensitizing antibody," "thermostable antibody" and others.

During this developmental stage there were two guiding principles. One was an implicit reliance on the cutaneous test, although doubts were expressed early, and the second was that if a patient reacted positively to the test the substance responsible for it was the cause of his symptoms and was removed completely, whenever possible, from his environment. The first principle is understandable, for the tuberculin test of the skin was known to indicate the presence of tuberculosis of the lungs and other organs. As a matter of fact, the similarity of the two phenomena of hypersensitiveness led to the adoption of the term "allergy" for both.

If a patient reacts positively to a cutaneous test with one allergen, he is apt to react to tests with many. The application of the second principle, namely, that each of these substances should be excluded absolutely from his environment, tended to produce difficulties. Such measures as omitting a large number of essential foods to the point of undernutrition, discarding overcoats, sweaters, blankets and rugs and even removal of overstuffed furniture from the house if a positive reaction to feathers appeared on the skin were not uncommon practice. These measures were supplemented by injections of mixtures of many allergens in the hope of rendering the patient less sensitive. Unfortunately, such treatment was too often unsuccessful, and then it became an absurdity in the opinion of referring physicians, who also were not sufficiently successful in treating their patients on the basis of positive reactions to cutaneous tests with allergens then on the market. To be sure, many patients did well, but it was the extreme measures then in vogue that made allergy unpopular, and from the perspective of general medical practice it reached a low ebb.

During the last fifteen years a more rational viewpoint has developed. Fallibilities in interpretation of cutaneous reactions became recognized and their proper evaluation formulated. Moreover, a guiding principle became emphasized, namely, that for symptoms to occur there must be sufficient contact with the offending allergen as well as adequate absorption of it. This led to the corollary that patients who have symptoms frequently or continually, and these are the ones who seek medical attention most, must be exposed to some common allergen in their environment. As a matter of practice, it has been found that there are not many allergens in the ordinary surroundings that cause frequent symptoms. It is a statistical fact that feathers, dust, house pets, milk, wheat and a few others are responsible for many cases. Some occupational environments, such as barns and bakeries, present particular problems, but these as a rule are more obvious than obscure. There may or may not be a correlation between the allergens to which a patient is clinically sensitive and positive reactions of the skin.

Emphasis on the fact that most continual symptoms of allergic asthma are due as a rule to comparatively few allergens is having a definite influence on the practice of allergy. In the first place, standardized and approved lists of allergens for routine testing of the skin have been reduced from many hundreds to dozens. Of more significance is the emphasis on the elicitation of a proper history, which includes environmental and dietary factors and differential diagnosis, rather than on cutaneous testing. This alone often reveals the clue to the cause of trouble.

More and more, general practitioners and specialists are becoming aware of this emphasis. Physicians in increasing numbers are taking courses in allergy, and the sale of books on allergy never was so great. A careful elicitation of the history, knowledge of allergens, the correct performance and interpretation of a limited number of cutaneous tests, the proper way of giving injections for hay fever, the risks involved and the manner of creating a dust-free environment and elimination diets comprise the measures with which allergy is now being combated by an increasing number of physicians.

To be sure, a concentrated course for a week or two by no means equips one to practice allergy, but it does teach the essentials. It provides sufficient knowledge to indicate which problems are difficult and which are simple and may respond to the proper application of fundamental principles. Unfortunately, many physicians attempt to practice allergy even without this limited information, but aside from that situation and from the question of how much training one should have there is no doubt that whereas in the earlier years allergy was treated largely by allergists now it is becoming more and more integrated into the general practice of medicine. This differs in no way from experience in the field of cardiology, gastroenterology and other specialties.

At the present time the laity and many members of the medical profession still believe that allergy accounts

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for many more of the ills of the flesh than it really does. Part of this belief is traditional, and part is due to the appearance of books and articles, written in good faith, in which allergy is held responsible for a large number of disorders of various systems of the body and the allergic person is alleged to be beset on all sides by harmful allergens in his food and environment and is warned that contact with even a minute amount of these may be his downfall. Since this is not correct, an evaluation of the true status of clinical allergy and of what can and cannot be accomplished by treatment must eventually be made.

One of the few advances in clinical allergy has been the realization that many cases of intractable asthma, urticaria and vasomotor rhinitis, especially those in which the trouble begins after the third decade of life are different from typical cases of hypersensitiveness to environmental allergens. In the former cases evidence of such hypersensitiveness is lacking. Infection plays an important etiologic role in some cases, but it remains debatable whether true bacterial allergy exists in such instances. In others the cause is unknown, and since no evident extrinsic or environmental circumstances are apparent, these have been designated as cases of "intrinsic" allergy since there is no direct approach in terms of removal of offending allergens or "desensitizing." These are the severe intractable cases, sometimes with serious complications, and in asthma deaths occur mostly among patients with this condition. It is such patients who are eventually referred to the allergist, but unfortunately since there is no specific treatment they are subjected to the process of trial and error and treatment is symptomatic and far from satisfactory.

Despite a large amount of literature on clinical allergy, little of consequence has been discovered in the last decade. The recognition of "intrinsic" causes, still unaccepted by many, and the advent of antihistaminic drugs are the more important advances. This does not hold true for some experimental aspects of allergy or important discoveries that have clinical bearing made by pathologists and immunochemists, to be spoken of presently.

Clinical allergy is at a fork in the road. One branch is a continuation of present practice, which is largely a matter of routine procedures with a high degree of specialization and a tendency to withdraw farther away from internal medicine. There is on the other hand a growing recognition that this specialty as now practiced is but a relatively small part of the field of allergy although it is important since it deals with a large number of afflicted persons and methods of successful treatment. However allergy has far wider implications than this.

Bacterial allergy, not as it concerns asthma but with respect to its role in rheumatic fever as well as its role in tuberculosis, brucellosis and other infectious diseases, is of significance.[1] The importance of hypersensitiveness to simple chemical substances is coming to be realized and has wide application not only in contact dermatitis but in drug allergy. As man is becoming exposed to an expanding list of chemical agents hypersensitiveness to these is increasing. Knowledge of the underlying mechanism involved is being unfolded by immunochemists.[2] Moreover, the suggestive revelation that toxic and allergic tissue reactions to sulfonamide compounds and possibly to other drugs are all of the same nature, as interpreted by pathologists, increases the importance of drug allergy.[3] The correlation of a triad of symptoms of serum sickness, namely, fever, urticaria or purpura and arthralgia, with the same triad of symptoms in rheumatic fever, some drug allergies and allergic purpura is attracting attention, and abroad a relationship has been found also with periarteritis nodosa and lupus erythematosus. Vascular allergy as demonstrated by periarteritis nodosa and by the experimental production of the lesions of this disease and of the Aschoff bodies of rheumatic fever in the same rabbit after sensitization with horse serum has introduced a new and provocative clinical concept.[4]

It is encouraging that these allergies are now appearing on the programs of meetings of allergists, internists and pathologists and are attracting increasing attention A few allergists have begun to engage in research on them. However, the great majority of allergists still are concerned largely with conventional and specialized technics. The more specialized these become the farther they are separated from the essential implications of internal medicine.

The scope of allergy requires a broad knowledge of medicine, which has led to the requisite imposed by recognized boards that in order to specialize in allergy one must first be certified for the practice of internal medicine or pediatrics. This rule has met with protest. Moreover, if a younger man wishes to specialize in allergy today and be certified by accepted subspecialty boards, he must fulfil rigid requirements. Certainly, if one is to become concerned with the newer aspects of allergy as well as with the conventional ones, he must have a prepared mind since so much is involved.

The future progress of the study of allergy lies in attracting the interest of such men away from the restricted applications of this specialty to the broader ones, as well as in increasing the interest of physicians in many fields of medicine. This should draw allergy closer to general medical practice and lift it to a higher level.

ABSTRACT OF DISCUSSION

DR. STEARNS S. BULLEN, Rochester, N. Y.: Every physician, whether his interests are limited to a special field or whether he works with general medical conditions, must be concerned with the problems of allergy, because major allergic diseases occur in 7 to 10 per cent of the population. They affect all age groups, they tend to recur over periods of years, they affect many organ systems and, although the covering and lining membranes, that is, the skin and the mucous membranes of the respiratory and digestive tracts, bear the brunt of the reaction, the functions of the circulatory and nervous systems are usually disturbed. The implications of the increasing incidence of sensitivity to such chemical compounds as the new synthetic drugs and the plastics used in industry cannot be overlooked. Fortunately, one or more specific causes can be found in a large proportion of cases by means of an adequate history and appropriate tests of the skin or mucous membranes. A knowledge of the natural course of the disease and of the variations which occur in different

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circumstances is a requisite for the history taker. He must be prepared to spend sufficient time to get a detailed account of the patient's environment and habits. He requires a working knowledge of the distribution of the substances which the history may indicate are offending factors. This may involve acquaintance with the use of such diverse materials as those handled in a beauty parlor or the type of glue used on a wooden airplane wing. It is pleasing to hear a careful clinician like Dr Alexander emphasize that a few dozen properly chosen and properly evaluated skin tests will give adequate information in most cases. With every positive test it is necessary to determine whether contact with this substance seems adequate to explain the symptoms and whether the patient comes in contact with this substance. The allergic patient is not exempt from disease due to causes other than allergy and is entitled to study from a broad medical viewpoint.

Special Article

PHYSICAL FITNESS

Report of the Subcommittee of the Baruch Committee on Physical Medicine

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A clear definition of the term physical fitness is elusive. Physical fitness in the broader sense with which the physician is concerned has no meaning unless qualified "for what." The purely physical requirements of various tasks, whether they be jobs or physical feats, are too varied to be determinable by any one set of criteria. Physical fitness should be discussed as a fundamental quality of a person which describes the satisfactory integration of his muscular, cardiovascular and nervous systems and could be evaluated separately by appropriate tests from the psychologic and emotional factors which modify his actions. This distinction between physical fitness, which is a simple physiologic attribute, and the more general fitness which is affected by the complexities of the personality and its environment is impractical and usually impossible with the knowledge and test methods available at present. Therefore, the term physical fitness as used in this report has a broader meaning than that frequently used and includes the variety of factors which affect human performance. Many instances can be cited in the army and in civilian life of persons well endowed physically who could not carry on practical tasks because of the emotional and psychologic elements involved. Likewise, there are many persons with poor physical equipment and even anatomic defects who, judged by accomplishments, are fit to carry on their jobs. The only final test of fitness seems to be the ability to perform the task desired without undue fatigue or exhaustion, and the qualities making this possible are those of the total personality.

The wide connotations and lack of definition of the unqualified term physical fitness are emphasized if one considers the groups of persons for whom it may be desirable to estimate physical fitness. We may list the following seven broad groups, no one of which, however, is simple and homogeneous (these are but examples; one could add infants and children, and other groups will come to mind):

1. Athletes, persons of school and college age and soldiers and sailors in training, considered as athletically occupied. Various degrees and kinds of fitness for different sports may require emphasis on differing aspects of physical fitness even in this sphere.

2. Laborers, including those factory workers, farmers and miners who are required to do strenuous physical tasks.

3. Sedentary workers, including the white collar class, professional groups, business executives and supervisory factory workers.

4. Workers in specialized duties, such as airplane pilots, policemen, locomotive engineers, submarine personnel and other specialized personnel of the armed forces.

5. The functionally handicapped (otherwise healthy). Here would be included the orthopedically handicapped and special subgroups such as the blind, the deaf and the mentally deficient.

6. Convalescents, which might include both those recovering from acute self-limited infections and those with more chronic debilitating diseases.

7. The aged, including those suffering from changes attributable to age, without specific disease.

The first four of these groups contain those who are presumably well and healthy; the last three groups concern those that present more distinctly medical problems.

Even in the limited fields of athletic fitness and fitness for hard muscular work the picture presented by previous workers is not simple. The following list is of the four main aspects of fitness emphasized in this group. A similar approach to the subject should preface the study of fitness for any task.

1. General cardiorespiratory, vascular and neuromuscular fitness: This concerns the ability to perform work requiring the more strenuous use of large muscle groups and placing stress on the heart and lungs, the blood supply to the muscles and the internal economy of the body.

2. Skill and agility: This involves the smooth integration of the neuromuscular system for either delicate or gross tasks. In part, it is an inborn characteristic; in part, it is the result of past experience. All tasks require some degree of this quality. It includes not only skill in an accustomed task but also rapid adaptability to new tasks.

3. Special strengths: Actual physical strength for specific tasks. The stoutness or mass as well as quality of bone, muscle and joint here come into consideration.

4. "Motivation": By this we mean the goal which a man seeks consciously or unconsciously by his efforts, his "will to do" and "will to succeed." It is so intimately linked with physical fitness, however classified, that it should be considered in any investigation of physical fitness.

These four subdivisions present only a sketchy outline of the aspects of athletic fitness. Different aspects of fitness are brought out by exercise of short, moderate or long duration, although endurance to severe exercise of several minutes' duration and that to more moderate

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exercise of long duration, such as mountain climbing, have great similarity. However, the ability to expend a single sudden burst of energy would appear to involve different processes than those exercises leading to gradual exhaustion. Resistance to fatigue has not been mentioned in these subdivisions since it comes in all. The factors leading to fatigue and the "breaking point" are nonetheless important and worthy of separate consideration. Likewise, the study of physical constitution and body build enter into the four aspects mentioned.

The subdivision motivation, although placed last in the list, might well be considered first in most practical situations, especially in the interpretation of laboratory tests. Universal experience has been that the physical could not be adequately dissociated from the psychologic aspects. In fact, the outcome of even simple and rather artificial tests of physical performance is often determined by various psychologic factors lumped together under the term "motivation." Of course, motivation is often quite different in a test situation than in the tasks of daily life.

Aside from the strong and often unpredictable psychologic factors involved, there are at least two other elements about which we know little which make the establishment of universal standards for fitness hazardous. The first is the influence of age and sex on the physical equipment of a person. The tests of "athletic" physical fitness applied to large numbers of persons have been for the most part on young persons, chiefly men. As will be indicated later, more information is needed about the exercise physiology of older persons in spite of the excellent start in the work of Robinson.[1] The second influence against universal standards of fitness is the large number of persons with physical defects who cannot be judged by fixed standards but who, we know, can often carry on an active and useful life, and so by that ultimate criterion can be considered fit.

In summary, then, physical fitness is a complex concept difficult to define and more difficult to measure but one which in its most useful form must evaluate the total individual. This became apparent even in such relatively homogeneous groups as the army; it is accentuated to the physician who must deal with the general population, a heterogeneous group consisting as it does of persons of both sexes, all ages, varying physical endowments and diverse psychologic environments. It seemed advisable, therefore, to point out at the outset some of the weaknesses of certain proposed concepts of physical fitness and of tests to measure it and to emphasize the inadvisability of attempting to set up universal standards. In our opinion the dangers of the oversimplification of the concept of fitness and the misapplication of simplified fitness tests are great. Moreover, it is unwise, and indeed impossible, to define standards of physical fitness at the present time. These negative conclusions by no means invalidate the concept of physical fitness; rather they serve the useful purpose of indicating just where knowledge of the subject stands, thus preventing conclusions on false premises.

In place of simple tests and standards we offer general principles which outline the methods by means of which a useful approach can be made toward the appraisal of physical fitness. Most of the methods are those which the physician already uses, consciously or unconsciously. The emphasis is on the dynamic or functional rather than the anatomic or static. As knowledge advances, the principles which underlie the functionally sound body and well adapted person will become clearer even though at present they can be stated only as generalities.

1. Robinson, S.: Experimental Studies of Physical Fitness in Relation to Age, Arbeitsphysiol. **10**: 251, 1938.

THE ORTHODOX MEDICAL EXAMINATION

The purpose of the usual medical examination is to discover organic physical defects. It is highly desirable, however, to extend the scope of the physical examination. In relationship to fitness it is necessary not merely to discover defects but to consider the potential performance of the patient in spite of his defects. For example, defective sight or hearing, especially if helped by glasses or hearing aids, may be no handicap to daily life. Good insight and strong motivation on the part of the patient can overcome even severe handicaps. In general one may say that organic disease and abnormalities affect fitness only when they reduce physical and mental activity below that necessary for the effective carrying on of the patient's job or when they reduce the prospect of continued life. Again the emphasis is on the dynamic state of the individual, rather than on the anatomic aspects of illness.

The routine medical history and physical examination can and should do more than assess physical defects. As has been seen, the ultimate test of fitness is the ability to perform the required tasks of daily living. Thus the medical history should include the reactions of the patient to his daily activities. Chronic or cumulative fatigue, diminution in effective work and excessive absenteeism from the job are all evidence of unfitness, and if no organic cause is found, search for social or personal factors may reveal the cause.

FUNCTIONAL TESTS AS AN ADJUNCT TO PHYSICAL EXAMINATION

Although simple forms of exercise are used by most physicians as part of the physical examination to assess the cardiovascular system, it should be profitable to extend this form of examination to learn more about the physiologic state of the individual as it may bear on fitness. No single form of exercise test can be suggested for this evaluation, but some of the rules established by physiologists in the study of homogeneous groups may be mentioned as a guide.[2] It should be mentioned again that the performance on any test involving general exercise is the sum of the patient's cardiovascular-muscular equipment, plus his desire and willingness to try hard. Actually, the psychologic drive, the will to do, should be considered a part of fitness. The difficulty with this component of fitness is that it may play an altogether different role in the test than in daily tasks or emergencies, and therefore escape evaluation.

The physician is often ill trained to evaluate the dynamic state of the subject. Such training should begin early in medical school. Along this line Landis[3] has reported a reorganization of his laboratory course in physiology, which should give better emphasis to man as an integrated organism, reacting to various stress conditions. The same approach might well be incorporated in other medical school departments so that the physician will come to consider the patient as a whole in relationship to the various internal and external stress factors. Obviously the technics for making this evaluation are often lacking, but unless at least the point of view is acquired early in a physician's career, prog-

2. Karpovich, P. V.; Starr, M. P., and Weiss, R. A.: Physical Fitness Test for Convalescents, J. A. M. A. **126**: 873 (Dec. 2) 1944.
3. Landis, E. M.: Physiology for Medical Students at Harvard, Harvard M. Alumni Bull. **19**: 9, 1944.

ress will be slow in his ability to evaluate functional health, which is practically a synonym for "fitness."

Workers in the field of exercise physiology agree that the physiologically efficient subject will show the following manifestations during and after a bout of strenuous exercise:

1. Ability to work at a high metabolic rate without undue disturbance of the cardiovascular system. At the same time the ability to increase cardiovascular work to very high levels before exhaustion.
2. Ability to continue to maintain a high metabolic rate.
3. Prompt return of the cardiovascular system toward the resting state after stopping exercise.
4. Postexercise well-being and the ability to continue usual activity.
5. Adequate vasomotor response both when rested and after exercise.

Although the basis for these statements is the study of healthy young men, it is generally and probably correctly assumed that the same manifestations, graded downward on a sliding scale of physical work, may also apply to healthy man as he ages or as he convalesces from an illness.

Test exercises to assess the capabilities of the cardiovascular-muscular system should be severe enough to place considerable stress on the subject, and should involve a type of exercise using large groups of muscles and requiring a minimum of skill. It is generally agreed that several test exercises are preferable to one.

The rules for test exercise as an adjunct to the usual physical examination cannot be made more specific in our present state of knowledge. It is believed that these principles hold in patients with loss of part of their muscular apparatus as in paralysis, for here one tests the function of that which remains, but of course special exercises must be devised for persons suffering particular defects. Tests that apply to practical work situations are to be recommended.[4] The efficient working of the circulatory and muscular apparatus can be considered an attribute of part of a man as well as a whole man. This attribute must be present sufficient for the patient to carry on his daily work and pleasure, and probably enough more to meet emergency needs, before he can be considered physically fit. The converse is not true; he may have an efficient body but not use it to carry on ultimate tasks by which one may judge him fit.

The physician can attempt to evaluate the first four points from observing the patient during and after exercise. The fifth point, concerning vasomotor response, is not seen directly from response to severe exercise. Since some manifestation of vasomotor stability and prompt adaptability have been the basis of many of the proposed tests of physical fitness, it is important to consider them. Among normal young men it has been common experience that vasomotor adaptability does not necessarily parallel performance ability in strenuous tasks. Therefore it is probably wise to consider performance ability and vasomotor adjustment as dissociated manifestations of a well functioning body. The advantage to the individual of a vasomotor system which adjusts readily to change in posture, heat and other stress conditions is self evident. Some method of evaluating it should be part of the physician's total assessment of the patient, whether it be the response of the patient's pulse and blood pressure to the excitement of a visit to the physician or a more elaborate test.

PSYCHOLOGIC EVALUATION

As was indicated early in this report the physical equipment of the patient and his physiologic response to stress are only a partial though necessary component of fitness. The final test is how he uses his equipment in his play and work. Although the judgment of the total individual, his will to do, his "motivation" and the factors behind it, may be said to be in the realm of psychiatry, many and perhaps most cases can be properly assessed by the discerning physician without special training. His approach need not involve highly specialized technics but will require an orderly evaluation of the patient from his history, his conversation, his general attitude and purposes in life, his reactions to simple situations (such as his reactions to the physical examination). The technics of evaluation by interview used by psychologists, personnel workers and others might be utilized with profit by the physician.[5] The best judgment will most often come from frequent contact when the patient is seen "as he is" in his work and under the stresses of his daily life.

Undoubtedly some psychologic situations are too complex to be approached by the physician without special training. In these cases the psychiatrist is essential as a consultant. In all situations requiring evaluation of personality the psychiatrist would be helpful, but it is obviously impossible to require a full psychiatric work-up for each judgment of fitness.

This discussion would not be complete without at least mention of the probable significance of fitness to the individual. It would appear that the chief objective of the attainment of physical fitness is to bring a person to that state whereby he can perform those tasks which will permit him to become an active member of society, economically independent if necessary. Moreover, he should be able to perform the tasks repeatedly without fatigue and have in addition a reserve to meet and sustain unexpected stresses, should they arise, without being incapacitated by them. A physically fit person will be able to meet these requirements and still maintain a sense of well-being. This picture of functional health is certainly an adequate goal. Actually there are no satisfactory data to predict that the physically fit subject will have a longer life span, a lower incidence of degenerative disease or a greater resistance to infection than his unfit confrere, although these relationships might well be studied further. However, in the psychologic and sociologic spheres various other possible benefits of fitness should be recognized, such as the aesthetic gains so often evident in body building or the frequently desirable personal discipline necessary for physical development.

Functional health cannot be attained by physical fitness alone, narrowly considered as a problem of the soma. To make judgments of physical fitness for the attainment of functional health and all that this may mean for the individual, one must include the study of the personality in a broad sense, distinguishing, if possible, the more constitutional patterns from what are more the product of environmental and cultural forces. Indeed, one may have to consider cultural patterns of family, race, religion and those of the age or time. The concept is thus a large one, impinging on many branches of the medical sciences and allied fields in the study of man.

4. Deaver, G. G., and Brown, M. E.: Physical Demands of Daily Life: An Objective Scale for Rating the Orthopedically Exceptional, New York, Institute for the Crippled and Disabled, 1945.

5. Bingham, W. V., and Moore, B. V.: How to Interview, New York, Harper & Brothers, 1934. Roethlisberger, F. J.: Management and Morale, Cambridge, Mass., Harvard University Press, 1941.

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SUMMARY

Physical fitness describes the functional capacity of the individual for a task. It has no real meaning unless the task or job for which fitness is to be judged is specified. The fit individual can perform the task repeatedly without undue fatigue and has a reserve capacity to meet and sustain unexpected stresses which may arise. Because of the complexity of the concept and the wide variety of tasks carried on by different persons, universal standards for its evaluation are not feasible. Their establishment in any form would be a misleading oversimplification.

Physical fitness for a task depends on the physical equipment and physiologic competence of the subject for the stress which the task imposes, together with the complex psychologic factors grouped under the term "motivation." The physical and psychologic factors cannot be fully dissociated even in test procedures.

Since physical fitness involves more particularly a functional concept rather than an anatomic one, it is important that the physician be able to evaluate the functional capacity of his patient, whenever possible, by appropriate tests of working capacity and vasomotor response.

Since physical fitness is often governed by psychologic factors which overshadow the physical competence of the body, it is important for the physician to evaluate the total individual, with the help of the psychiatrist when necessary.

There is need for more data on physical capacity and physiologic adjustment in respect to age and sex factors, specific work situations in different environments, skills, strength and learning abilities in order to furnish guides to the physician in his judgment of a functionally normal body.

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Clinical Notes, Suggestions and New Instruments

A MODIFICATION OF THE CROSBY-COONEY OPERATION FOR INTRACTABLE ASCITES DUE TO CIRRHOSIS OF THE LIVER

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In 1946 Crosby and Cooney[1] revived interest in an operative procedure for the treatment of intractable ascites and reported several cases in which considerable improvement was obtained following operation. The procedure which they described had been employed from time to time for several decades but for a number of reasons had never become popular. They eliminated one of the difficulties by employing a glass button with a cap on it to prevent plugging of the lumen by omentum.

The principle underlying the operation is the transport of ascitic fluid from the peritoneal cavity through a glass button to a subcutaneous pocket where it can be absorbed by the lymphatics. When the operation is successful, the patient is spared the unpleasantness of and repeated need for paracenteses and, secondly, has in a sense a slow constant clysis of a fluid which may contain a significant amount of protein. In some patients the loss of protein due to repeated paracenteses may be considerable.

In January 1947 I saw in consultation a patient with advanced cirrhosis of the liver and an uncontrollable wasting ascites. He had been subjected to the Crosby-Cooney operation approximately three months earlier and for a period of two months had obtained almost complete relief from his ascites. However, after two months the subcutaneous pocket stopped absorbing fluid and the ascites reaccumulated rapidly, necessitating resumption of paracenteses. The man was unfortunately too ill to contemplate a portacaval anastomosis.[2]

When this case was discussed with Dr. Irving S. Wright, he pointed out that operations for chronic lymphedema of the legs by the Kondoleon procedure or one of its modifications are most effective when the deep fascia is removed along with the edematous fat, thereby exposing the lymphatics of the muscles. With this suggestion in mind, on March 20, 1947, I carried out the Crosby-Cooney operation on a 55 year old Chinese man, but in addition to their technic removed approximately a 6 by 6 inch (15.2 cm.) layer of fascia, thereby exposing portions of the following muscles: the internal oblique, the right rectus and transverse abdominal muscles. Also Scarpa's fascia was excised to expose the fat superficially. Sufficient fascia was left for the closure of the mid right rectus incision and for the stability of the button.

REPORT OF CASE

T. T., a 55 year old Chinese man, was admitted to the Gouverneur Hospital[3] on Sept. 19, 1946. Because of language difficulty the only facts obtained were that the patient had had a swollen abdomen and a painful umbilical hernia for some time. Physical examination revealed an alert, emaciated man of stated age with decided abdominal distension, prominent periumbilical veins, a large thin-walled umbilical hernia and evidence of a large amount of ascitic fluid. The spleen could not be palpated but the edge of the liver extended 2 to 3 fingerbreadths below the costal margin. The heart showed an auricular fibrillation which was confirmed by an electrocardiogram. The lungs were clear although the diaphragms were considerably elevated. There was no peripheral edema. Laboratory studies showed the following: The urine was normal, the serum protein was 6.5 Gm. per hundred cubic centimeters, with the albumin 2.8 Gm. and globulin 3.7 Gm; the cephalin flocculation reading was 4 plus; the icterus index was 18; cholesterol was 75 mg. and 66 mg. with esters of 10 mg. and 41 mg. on two occasions; nonprotein nitrogen was 43 mg. per hundred cubic centimeters; the Wassermann reaction was negative; an esophagram showed no varicosities. The hepatic function tests were repeated with essentially the same results on Jan. 20 and Jan. 28, 1947. Also the prothrombin time by Quick's method was nineteen seconds for the patient and the control. Intravenous pyelograms were normal.

Dates and Volumes of Paracenteses

Date	Volume, Cc.	Date	Volume Cc.
10/ 5/46	9,200	1/18/47	6,500
10/11/46	2,500	1/29/47	10,000
10/26/46	7,250	2/ 4/47	8,500
11/20/46	10,000	2/14/47	9,500
12/ 5/46	11,000	2/26/47	4,500
12/16/46	9,500	3/ 7/47	4,000

Course.—The patient was placed on a high protein, high carbohydrate diet with added vitamins, and his general condition improved somewhat. However, it was necessary to perform twelve paracenteses between Oct. 5, 1946 and March 7, 1947 (the table). In February the patient was digitalized without influence on the rate of formation of his ascitic fluid. On March 20, a glass button was inserted in the right lower quadrant and the fascia removed as has been described. At operation 6,000 cc. of clear ascitic fluid was collected. The liver showed a finely granular surface which was frosted with a whitish covering. It was enlarged and hard. The biopsy confirmed the diagnosis of portal cirrhosis of a moderate degree. The spleen was enlarged, being approximately three times normal size. The umbilical hernia, which before operation measured 10 cm. in diameter, had a small internal opening of 1 cm. The patient was allowed out of bed on the following day, and his postoperative course was uneventful. The pocket was full of fluid by the second postoperative day, but of great interest was the fact that scrotal or leg edema never devel-

1. Crosby, R. C., and Cooney, E. A.: Surgical Treatment of Ascites, New England J. Med. 235: 581-585 (Oct. 17) 1946.

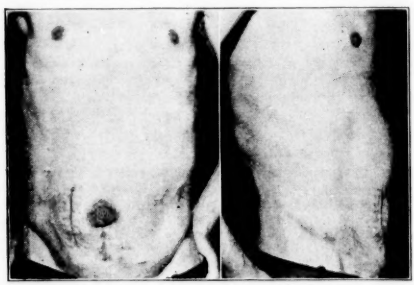
2. Blakemore, A. H., and Lord, J. W., Jr.: The Technic of Using Vitallium Tubes in Establishing Portacaval Shunts for Portal Hypertension, Ann. Surg. 122: 476-489 (Oct.) 1945.

3. Service of Dr. Miguel C. Elias.

oped as it had in Crosby and Cooney's patients. Further, between the eighteenth and the twenty-ninth postoperative day the fluid in the subcutaneous pocket disappeared; it has since remained completely empty. The umbilical hernia has remained level with the abdominal wall (the figure). When the patient was last examined, five and one-half months postoperatively, he was asymptomatic, able to carry on with his usual activities and was free from demonstrable ascites. The glass button could be palpated easily beneath the skin in the right lower quadrant. Analysis of the serum protein now showed a value of 7.3 Gm. per hundred cubic centimeters with an albumin-globulin ratio of 4.0 to 3.3. The cephalin fluocculation reading was 3 plus.

COMMENT

Patients with cirrhosis of the liver and intractable ascites present a real problem to the physician. In spite of the best of modern dietary regimens in some cases of cirrhosis ascitic fluid will continue to collect and require repeated paracenteses. This procedure is both annoying to the patient and not completely without danger of infection. The protein-containing ascitic fluid is lost, and this may be of considerable significance. There are two operative procedures which may help these patients. If there is evidence of esophageal varices and/or a history of massive gastrointestinal hemorrhage and the patient is in good condition then some kind of portacaval shunt should



Anterior and lateral views of patient three and one-half months postoperatively. The umbilical hernia is flat and the subcutaneous pocket has disappeared. There is no evidence of ascites.

be carried out. However, if ascites is the only problem or if the patient is a poor operative risk, then the Crosby-Cooney button operation with the addition of fascial removal should be utilized. The operation is easy to perform, is considerably less trying on the patient than a portacaval shunt and when successful may bring about complete rehabilitation.

There unquestionably will be failures with the button operation but in a condition in which high grade invalidism exists, the possibility of helping, by this simple operative procedure, some of these patients with intractable ascites should not be overlooked.

SUMMARY AND CONCLUSIONS

The Crosby-Cooney glass button operation has proved to be worth while in some cases of intractable ascites. In order to facilitate greater absorption of the ascitic fluid from the subcutaneous pocket, a modification of the operation has been made by adding the removal of a large area of fascia with consequent exposure of lymphatics in the muscles. A case is reported which illustrates these points.

ADDENDUM

As a result of one failure in my series and data submitted by another surgeon who had three glass buttons plug with omentum, the following operative details should be employed in addition to the fasciotomy: 1. If an omentum of sufficient length to reach the lower part of the rectus incision is present it should be excised. 2. As much muscle is exposed as is possible through the incision by removing fascia not only lateral to the incision but also across the midline on the opposite side. 3. Great care must be used in closing the skin of the incision to prevent late leakage of ascitic fluid, which occurred in the case cited in this article on the twelfth postoperative day. Subcuticular nonabsorbable sutures are placed followed by end on mattress sutures which are not removed until the fourteenth to sixteenth postoperative days. 4. If ascites accumulates faster than the muscles in the pocket can absorb it, paracenteses should be performed not through the pocket but in the lower quadrant away from the pocket so that leakage will be minimal.

55 East Ninety-Second Street.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

SOLO-PAK HEARING AIDS ACCEPTABLE

Manufacturer: Allen-Howe Electronics Corp., 150 Main Street, Peabody, Mass.

Three Instruments:

Model r, Red Case, Serial 7394, Magnetic Receiver
Model g, Green Case, Serial 7240, Brush Crystal Receiver
Model b, Black Case, Serial 7239, WE 724 Receiver

These three instruments are all assembled on stud-supported insulating sheets and enclosed in cases of a pliable plastic material, without wearing clips. The batteries are self contained, access to battery space being by zipper opening at the bottom of the case. Batteries are changed without removal of the unit from the case. The chassis can be removed from the case through this zipper opening to change cases or to make repairs. The receivers are connected by cord and plug to the chassis, with the cord coming out through a hole at the upper rear of the case.

Volume control (wheel type) is at one side of top of case, and there is a combination on-off tone switch at other side.

Dimensions and Weight

Dimensions: 120 by 51 mm. Weight: 198 Gm. (7 oz.).

Batteries

A battery: mercury, 1.2 volts.
B battery: zinc and carbon, 22.5 volts.

Current Drain Data

	A Battery		B Battery		
				Milliamperes	
Case	Volts	Milliamperes	Volts	Quiet	Squealing
Red	1.2	75	20	0.25	0.30
Green	1.2	50	22	0.30	0.45
Black	1.2	70	21	0.55	0.70

Acoustical Gain

Measurements were made of the acoustical gain in decibels for sound pressure level in a 2 cc. coupler over that pressure level at the microphone placed on the face of a 40 by 20 cm. baffle. The input level at each frequency was 0.02 dyne per square centimeter. Typical results are tabulated as follows (all instruments full on volume):

Frequency	256	512	1,024	1,200	2,250	3,100	4,096
Red case, 1 dot	27	34	41	47	57	34	22
Red case, 2 dots	23	30	38	43	54	32	19
Green case, 2 dots	40	46	60	52	53	32	30
Black case, 2 dots	28	37	43	46	48	33	16

Approximate values of maximum sound pressure levels in the 2 cc. coupler, with volume control set for full gain and tone setting 2 dots, are shown below:

	Red Case		Green Case		Black Case	
		Maximum		Maximum		Maximum
Frequency	Input Level	Output Level	Input Level	Output Level	Input Level	Output Level
600 cycles	65 db.	97 db.	65 db.	110 db.	65 db.	103 db.
1,024 cycles	65 db.	102 db.				
2,048 cycles	60 db.	104 db.				
2,250 cycles	55 db.	107 db.				

Intelligibility tests (random words) were made with a person of normal hearing seated inside a booth giving about 30 decibels in sound reduction, The speaking person was outside the booth

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using a normal tone of voice. These conditions are rather critical, since the signal to noise ratio in the instrument is much worse than that obtained in normal use. Scores made under these conditions are listed below:

Red case	58 per cent
Green case	48 per cent
(Hiss noise masked words badly)	
Black case	68 per cent

At the suggestion of the manufacturer these instruments were dropped from lapel height to a rubber-matted concrete floor and found to operate satisfactorily after several falls. The investigator, weighing 70 Kg., then stood on one of the instruments and caused no damage.

On the recommendation of the Consultants on Audiometers, the Council on Physical Medicine voted to include the three Solo-Pak Hearing Aids in its list of accepted devices.

ELECTRO-EAR HEARING AID MODEL C ACCEPTABLE

Manufacturer: American Earphone Co., Inc., 10 East 43d Street, New York 17.

The Electro-Ear Hearing Aid, Model C, is self contained, the battery compartment being accessible from the back of the case by means of a full length piano-hinged cover. The cream-colored plastic case has a wearing clip secured to the back.

Electronear Model C

Two wheel-type controls are placed on the instrument. The four position tone control is on the side of the case; the combination on-off switch and continuously variable volume control is centered on the top of the instrument.

The receiver cord has plugs at both ends. Three crystal receivers were supplied for the tests, one large, one small and one special model.

Dimensions and Weight

Weight: 184.2 Gm. (6½ ounces).
Length: 14 cm. (5½ inches).
Thickness: 2.2 cm. (⅞ inch approximately).
Width: 6.6 cm. (2⅝ inches).

Battery Data

Usable batteries: A, 1½ volts; B, 30 volts.

Battery Drain Measurements

	Voltage	Current
A	1.4 volts	47 milliamperes
B (Quiet)	29 volts	1.3 milliamperes
(Squealing)	29 volts	0.9 milliampere

Acoustical Gain

Measurements were made of the gain in decibels in the sound pressure level set up in a coupler over the sound pressure level at the microphone set in the face of an 18 by 8 inch (40 by 20 cm.) baffle. The input level at each frequency was 0.02 dyne per square centimeter. A large crystal receiver was used.

Following are typical results obtained with the volume control full on, at two different settings of the tone control and seven frequencies:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096	
Tone Control Setting								
3 black dots	23	29	45	51	38	29	25	decibels
1 red dot	30	34	47	52	46	52	49	decibels

Approximate values of maximum pressure levels, at four frequencies set up in the regular coupler with volume control set for full gain and the 1 red dot tone setting are as follows:

Frequency	Input Level	Maximum Output Level
600 cycles	65 db.	104.5 db.
1,024 cycles	70 db.	113.5 db.
1,200 cycles	70 db.	115.5 db.
2,048 cycles	60 db.	100.0 db.

Zero reference level is 0.0002 dyne per square centimeter.

Intelligibility tests made with a hard of hearing subject gave scores of 85 per cent or better.

The Council on Physical Medicine voted to include the Electro-Ear Hearing Aid, Model C, in its list of accepted devices.

VACTUPHONE HEARING AID MODEL 3 ACCEPTABLE

Manufacturer: Allen-Howe Electronics Corp., 150 Main Street, Peabody, Mass.

This instrument is a plastic-cased hearing aid, using separate batteries. One five-prong plug, fitting into the top of the instrument, has both battery and receiver cords directly connected to it. The crystal receiver supplied is connected to the receiver cord by a plug. The switch is a push-pull type on the top of the instrument. Volume and tone controls are knurled wheel type, one on each side of the unit near the top. A two-directional wearing clip is riveted to the back of the case.

Dimensions and Weight

Dimensions: 95 by 57 by 22 mm.
Weight (including batteries): 266 Gm. (9.4 ounces)

Battery Data

A battery	1.4 volts	85 milliamperes
B battery (Quiet)	29 volts	1.3 milliampere
(Squealing)	29 volts	1.0 milliampere

Acoustical Gain

Measurements were made of the acoustical gain in decibels in the sound pressure level set up in a 2 cc. coupler over that pressure level at the microphone on the face of a 40 by 20 cm. baffle. The input level at each frequency was 0.02 dyne per square centimeter. Typical results are tabulated as follows:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096
Tone low	36	42	58	51	33	33	26
Tone high	39	47	62	57	47	50	43

Approximate values of maximum sound pressure levels, at three frequencies set up in the 2 cc. coupler with volume set for full gain and tone setting high, are shown below:

Frequency	Input Level	Maximum Output Level
600 cycles	65 db.	114 db.
1,024 cycles	65 db.	125 db.
2,048 cycles	65 db.	107 db.

Intelligibility tests (random words) were made with a person of normal hearing seated inside a booth providing about 30 decibels in sound reduction. The speaking person was outside the booth using a normal tone of voice. The score made under these critical conditions was 84 per cent, considered very good.

At the suggestion of the manufacturer, this instrument was tested by dropping it from coat lapel level on rubber-matted concrete floor. After three tests it continued to function.

The Council on Physical Medicine voted to include the Vactuphone Hearing Aid, Model 3, in its list of accepted devices.

NEBULIZER NASAL PREMO ACCEPTABLE

Manufacturer: Premo Pharmaceutical Laboratories, Inc., 443 Broadway, New York 13.

The Nebulizer Nasal Premo, like its predecessors, is a device designed to project aqueous solutions as a fine mist or aerosol for inhalation, in this case by way of the nose. It is intended to be used in administering water-soluble, nonvolatile medicaments of high potency, like epinephrine and penicillin, by way of the respiratory tract.

The apparatus is made of glass except for a small metal Venturi tube. The specimen submitted for testing nebulized 1 cc. of water in seven minutes when a hand-operated bulb was used. If compressed air is available, the process can be hastened. Two characteristics of the apparatus are the great fineness of the resulting spray or nebula and the completeness of the process, which latter implies that some control of dosage is achieved.

The Council on Physical Medicine voted to include the Nebulizer Nasal Premo in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 13, 1948

NOTICE

At noon Monday, March 8, the composing room staff of the press of the American Medical Association discontinued its work as part of a general disturbance in the printing trade now prevalent in Chicago. The compositors of the newspapers have been away from their work several months. During the past week, discussions between the printers of I.T.U., Local 16, and the Franklin Association, which is the organization of printing establishments, failed to reach any agreement.

The Journal comes somewhat late this week because of the necessity for emergency activities in getting it on the press. Arrangements are in process for publication each week utilizing new printing technics which are being developed for the purpose.

The Board of Trustees of the Association hopes that subscribers to publications of the Association will make due allowances for difficulties during this period of adjustment.

FOREIGN BODY GRANULOMA

There are two outstanding varieties of foreign body granuloma—one is produced by animate and the other by inanimate material. The foreign substance may be introduced from without, as in injuries, or produced in the body, as in necrotic areas where cholesterol or fatty acid crystals are formed. Occasionally the foreign substance may be inserted in the form of sutures or ligatures in surgical operations or fortuitously as dusting powders on surgeons' rubber gloves, or even deliberately for "beautification."

The tubercle is the most prevalent and familiar example of foreign body granuloma due to a living substance. If, however, as Prudden and Hodenpyle showed many years ago, the tubercle bacillus is killed and dead bacilli are insufflated into the lungs of rabbits, the bacilli produce epithelioid tubercles which are histologically typical except, of course, for the absence of caseation. Nor, obviously, can they reproduce similar lesions locally or in distant tissues. The reaction is due presumably to the insoluble waxy substances with which the tubercle bacillus is provided. In practically all foreign body reactions the histologic picture bears a certain resemblance to the epithelioid tubercle, including the formation of giant cells, the cytoplasm of which is apposed to the foreign body; or, if the foreign body is small enough, it may be included in the cytoplasm of the giant cell and eventually disposed of.

In previous years it was common practice to use dusting powders for surgeons' rubber gloves that contained lycopodium spores. When introduced into the peritoneum and other tissues the spores produced so-called dust nodules, sometimes in sufficient numbers to cause intestinal obstruction and other surgical hazards. In time talc was substituted for lycopodium but likewise produced nodules which are equally dangerous. Nevertheless talc is still being widely employed as a dusting powder for surgeons' rubber gloves in spite of numerous reports of talc granuloma in the peritoneum, rectum, vagina, brain and elsewhere together with a propensity for the powder to convert surgical incisions into sinuses which refuse to heal.

In 1907 Whipple described a disease characterized clinically by gradual loss of weight and strength, by the presence of abundant neutral fat and fatty acids in the stools and by a form of fugitive arthritis. Anatomically, the disease is attended by deposits in the intestinal villi and mesenteric lymph nodes of neutral fats and fatty acids together with extensive infiltration of embryonal fat cells and the presence of variable numbers of multinuclear foreign body giant cells enclosing particles of degenerate fat. Since the appearance of Whipple's paper 7 additional cases have been described,[1] and the disease is now regarded, at least by some pathologists, as one in which degenerate fat cells produce a diffuse foreign body granuloma.

A localized nodular form of foreign body granuloma has been described under the designation of adiponecrosis. This granuloma is due to some sort of injury; such as the infusion of excessive quantities of saline solution into the subcutaneous fat, usually in the region of the breasts. The nodules are composed of mature connective tissue, fibroblasts, embryonal fat cells and giant cells containing remnants of degenerate fat. The lesions may rupture through the skin and give rise to obstinate sinuses.

In a recent report to the New York Pathological Society, Von Glahn and Hall observed a unique form of foreign body granuloma due to cotton fibers in the walls of the smaller pulmonary vessels, the fibers being introduced apparently from gauze filters used in the process of intravenous medication.

There is a form of foreign body granuloma in which giant cells enclose brightly staining, acidophilic, star-shaped bodies that have been variously interpreted as parasitic inclusions, astrospheres, fibrinoid deposits and paraffin or fatty acid crystals. This form of granuloma has been described in various situations, including the

1. Fitzgerald, P. J., and Kinney, T. D.: Intestinal Lipodystrophy (Whipple's Disease), Am. J. Path., **21**: 1069, 1945.

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tissues of the face following the "beautician's" injection of paraffin for cosmetic purposes. In addition, the beautician is too often responsible for still other foreign body reactions which are not only disfiguring but are ultimate causes of mental perturbation that is even more pronounced than the distress caused by the wrinkles and other blemishes that his injections of paraffin are supposed to remove.

PHYSICAL FITNESS AS PHYSICIANS SEE IT

Elsewhere in this issue is a report on physical fitness by four physicians acting as the Subcommittee on Physical Fitness of the Baruch Committee on Physical Medicine. The report rejects the concept that any one set of criteria can successfully predetermine fitness for the wide variety of tasks and activities of modern life. It also repudiates the idea that fitness can be determined on the basis of physical tests or medical examinations alone. In the words of the report, "The only final test of fitness seems to be the ability to perform the task desired without undue fatigue or exhaustion, and the qualities making this possible are those of the total personality."

Taking athletes as only one of the many broad groups for whom it may be desirable to estimate physical fitness, the report points out that tests in as many aspects as four (general cardiorespiratory, vascular and neuromuscular fitness; skill and agility; special strengths, and "motivation") still provide only a limited idea as to the all-round fitness of the person for athletic participation. The unsolved problem of resistance to fatigue is involved in every one of the foregoing aspects of appraisal.

The Subcommittee believes that it will eventually be possible to evaluate fitness, and it offers, instead of simple tests and standards, some general principles by means of which a useful approach can be made toward the appraisal of physical fitness. Among the general principles set forth, these are outstanding: 1. The orthodox medical examination and medical history should not merely discover defects or diseases but also should "consider the potential performance of the patient in spite of his defects" and "include the reactions of the patient to his daily activities." 2. Several test exercises severe enough to place considerable stress on the subject should be used as an adjunct to the medical examination to assess the capabilities of the cardiovascularmuscular system. (The suggestion is also made that training of medical students in the use of such tests should begin early in medical school.) 3. Through "an orderly evaluation of the patient from his history, his conversation, his general attitude and purposes in life and his reactions to simple situations" the physician should form a judgment as to "the total individual, his will to do, his 'motivation' and the factors behind it." In some cases the help of the psychiatrist may be necessary in this latter evaluation.

Though this report will be disappointing to the physician seeking a simple answer to the problem of evaluating fitness in his patients, the statement merits serious study. In the periodic health examination the emphasis must be placed "on the dynamic state of the individual, rather than on the anatomic aspects of illness." Accomplishment of this proposal will certainly require both time and effort, but the adaptation of functional tests already developed in the field of physical education, and of the interview technics developed by psychologists and personnel workers, might well facilitate the process.

Current Comments

THE ROLE OF ACETIC ACID IN METABOLISM

In the oxidation of various food substances in the animal organism, the various metabolites are probably changed to a common substance and each metabolite is oxidized through this substance in a common pathway. Apparently this is the system operative in animal metabolism; the common substance to which foodstuffs are changed appears to be acetic acid or some closely related compound. Ever since the classic studies of Neubauer, Knoop and Dakin some forty years ago, acetate or some closely related compound has been recognized as a principal intermediate in the metabolism of fat. It now appears[1] that it may also be an intermediate in the final disposition of carbohydrate. Its accumulation may be demonstrated when pyruvate is incubated with slices of tissue in the presence of fluoroacetate, an inhibitor of further oxidation of acetate. The acetate formed in animal metabolism is removed so rapidly in further reactions that its presence in the tissues is detectable with difficulty. The acetate appears to be oxidized principally in the citric acid cycle, a device originally thought to be active only in the oxidation of carbohydrate. It serves also as an important precursor in the formation of cholesterol, the sex hormones, protoporphyrin, purines, acetoacetic acid and the acetyl sulfonamide and acetyl amino compounds. Carbohydrates and fats appear to give rise to slightly different forms of acetate, since the carbon atoms derived from these substances take different positions in the ring of the purine nucleus and also react differently in acetylation reactions. Acetate may also be changed into glycogen, apparently through the reversible reactions which relate carbohydrate to the various acids of the citric acid cycle. The dual role of acetate in both carbohydrate and fat metabolism appears at first sight to be incompatible with present concepts of the ketogenic nature of fat and the antiketogenic nature of carbohydrate. Carbohydrates, it would seem, cannot be antiketogenic if they may be formed from the acetate, the same substance which

1. Ploch, K.: The Metabolism of Acetic Acid in Animal Tissues, Physiological Reviews 27:574 (Oct.) 1947.

forms acetoacetic acid. These concepts may be reconciled only through the realization that there are two different factors involved in the formation of a substance such as carbohydrate. The one factor refers to the amount, as it is usually determined in quantitative analysis; the other refers to "replacement," which may at present be followed only by the use of labeled atoms or isotopes. Acetate formed from fat can replace carbohydrate, but it cannot increase the amount present in the organism because the process by which it is utilized requires the participation of carbohydrate itself. This explains why fatty acid and acetate do not increase glycogen stores in the starved or diabetic animal. Many phases of the role of acetate in tissue metabolism await further investigation. One of the major questions remaining is the exact intermediate form in which acetate undergoes reactions.

FOLIC ACID VERSUS LIVER EXTRACT

Kracke and Riser [1] of the Hematology Clinic, Medical College of Alabama, compared the therapeutic efficiencies of folic acid and liver extract in the treatment of pernicious anemia. In 1945, following Angier's successful synthesis of folic acid, numerous clinical investigators reported its successful therapeutic use in different blood dyscrasias.[2] For comparison of its therapeutic efficiency with that of liver extract, Kracke and Riser selected a group of 4 untreated cases of classic addisonian pernicious anemia in severe relapse. All patients in this group were hospitalized for thorough study. Control observations were made prior to the institution of folic acid therapy. In addition to the usual laboratory procedures, sternal marrow aspirations, complete roentgenologic and fluoroscopic studies of the gastrointestinal tract and gastric analyses were done on each patient. None of the patients exhibited involvement of the central nervous system. A positive hematologic response to folic acid was noted in each case. Following daily oral administration of 20 mg. folic acid, the initial erythrocyte count of 770,000 per cubic millimeter in a typical case was increased to 2,000,000 by the end of twenty days and to nearly 4,000,000 by the forty-fifth day. The initial hemoglobin reading of 3 Gm. was increased to approximately 8 Gm. This seven week treatment was followed by a daily administration of 10 mg. folic acid by mouth. On this reduced dose all patients have been maintained in a state of complete hematologic remission to the date of this report (seven months later). In none of the patients has there developed disease of the central nervous system. Folic acid thus appears to be equally effective with liver extract in the treatment of pernicious anemia. Liver extract certainly contains an active component other than folic acid, since the potency of liver extract is greater than can be accounted for on the basis of its folic acid content. This second antianemic factor in liver extract has not yet been determined.

1. Kracke, R. R., and Riser, W. H.: Proc. Soc. Exp. Biol. & Med. **64**: 179, 1947.

2. Angier, R. B., and others: Science **102**: 227, 1945.

3. Spies, T. D.; Vilter, C. F.; Koch, M. B., and Caldwell, M. H.: South. M. J. **38**: 707, 1945. Moore, C. V.; Bierbaum, O. S.; Welch, Ann D., and Wright, L. D.: J. Lab. & Clin. Med. **30**: 1056, 1945. Dyke, W. J., Jones, E., and Johnson, H. C.: J.A.M.A. **130**: 780, 1946. Goldsmith, G. A.: J. Lab. & Clin. Med. **31**: 1186, 1946. Doan, C. A.; Wilson, H. E., Jr., and Wright, E. S.: Ohio State M.J. **42**: 139, 1946. Zuelzer, W. W.: J.A.M.A. **131**: 7, 1946.

THERMAL SEDATION

According to experimental evidence recently reported by Cowles and Nelson [1] of the Department of Preventive Medicine, University of California at Los Angeles, a tremendous field awaits study of the effects of altering body temperature on the course of disease, especially when toxic factors are concerned. Their conclusion was based on a study of the effects of low temperatures on the symptoms of tetanus toxin in the desert iguana. This lizard was selected because of its wide range in temperature tolerance and its similarity to mammals with respect to its optimum temperature (36 to 41 C.). In preliminary experiments lizards weighing 65 Gm. were injected intramuscularly in the femoral region with massive doses of tetanus toxin and exposed to normal room temperatures (24 to 26 C.). Thirty-six hours after inoculation the first symptoms appeared as slight tremors in the head and caudal regions. Two hours later action of the hind legs was impaired and the tail was arched strongly in a lateral position. Sound or sudden movements taking place in close proximity to the animals caused convulsions, although fairly periodic spasms were observed without extra stimulation. Prior to death, violent symptoms of tetanic convulsions and opisthotonic contractions threw the animals into strong sigmoid curves with the head inclined upward at a sharp angle. This posture was retained with only slight relaxation after death. In a preliminary test of temperature effects, 9 lizards were divided into three groups, one of which received 100 guinea pig MLD's (minimum lethal doses) of the toxin, another 50 MLD's and the third 5 MLD's. From each of these dosage groups, 1 animal was placed in a heated cabinet at 38 C., 1 in a cage at room temperature (27 C.) and a third in an incubator refrigerator at 10 C. In the group at 38 C. symptoms began to appear in about twenty-four hours, with characteristic convulsive death by the end of two days. With the moderate cooling (27 C.) there was a material prolongation of life, the first symptoms being delayed till the end of three days and death till the seventh or eighth day. With the chilled group (10 C.) no symptoms were noted till the end of the experiment (fourteen days). Tests of larger series of animals and greater standardization of the toxic dose are now in progress. The preliminary tests, however, clearly show that lowering of temperature definitely prolongs life in the desert iguana and give rise to the hope that similar procedures may be successful adjunctive therapies in certain human toxic diseases.

1. Cowles, R. B., and Nelson, N. B.: Proc. Soc. Exper. Biol. & Med. **64**: 220 (Feb.) 1947.

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NATIONAL CONFERENCE ON RURAL HEALTH

Third Annual Meeting, held in the Palmer House, February 6 and 7, 1948

DR. F. S. CROCKETT, Lafayette, Ind., Presiding

FRIDAY, FEBRUARY 6

The conference on Rural Health of the American Medical Association was called to order at 9:45 a. m. by the Chairman, Dr. F. S. Crockett, Committee on Rural Medical Service, American Medical Association.

CHAIRMAN CROCKETT: Our two previous annual conferences dealt with the need for better health facilities and health services in rural areas and sought to evolve technics that would secure this improvement in rural living. The common interest of doctors and farmers resulted in expanding our American Medical Association Committee on Rural Medical Service to include advisory members from the four larger farm organizations. This addition of advisory members from the farm groups has made possible a bilateral approach to all our common health problems free from any dominant unilateral self interest.

The program that we are giving today and tomorrow is the result of full and free conference which was held last October with our advisory members. Any one present is privileged to voice his opinion, no matter how controversial. If there are things which seem to you important and of which the profession apparently is not aware, they should be brought out in these conferences.

The program this year takes up the health status of the rural child. Good health cannot be imposed on any individual or community by some higher authority; it can be achieved if those concerned want it more than anything else. Our people must be shown that children should be kept free from many of the diseases of childhood with their resultant disability and mortality. By providing adequate education in health matters, it is not the intent to make doctors of all the people, but if persons can be educated in health matters to the point where they will seek health while still curable and take under guidance the necessary measures to prevent the spread of disease, then will we have the fulfilment of many of our objectives. We look to this conference conducted in cooperation with the National Cooperative Milk Producers Federation, the Farmers Educational Cooperative Union, the National Grange and the American Farm Bureau Federation to mark another milestone in our progress toward better rural health.

Address of Welcome

DR. GEORGE F. LULL, Secretary and General Manager, American Medical Association, Chicago: We feel that the problems about to be discussed are of vital interest to doctors as well as to members of these important agricultural groups. We have, following this meeting, a Congress on Medical Education. Some of the work being done by the medical schools fits in with the work recommended by many of your groups, that is, in certain states scholarships are being set up for men who after the completion of the study of medicine will go to rural areas and practice where there is a need for a general practitioner. The distribution of these doctors to rural areas is not a simple matter. However, this step by the institutions of learning is in the right direction and may help solve this problem.

It is also of a great deal of importance to us to bring into this conference the health of rural children. To improve the health of this group, the physicians must have the aid of farm families. The Hill-Burton Bill is a step in the right direction for improved health. It means that more hospitals will be available for persons in rural areas. These hospitals will go, hand in hand with better medical care, because the better physicians will be attracted to areas where adequate hospitalization is available. A great deal of benefit is going to result to the rural areas, but it isn't going to be accomplished overnight. It is important that these hospitals be properly located. The site should be selected with care and should depend on need rather than on political expediency. Most places have gone into this with a great deal of care and the results of the surveys show that the communities and the agencies involved are vitally interested. We hope that you enjoy your stay with us and that we can all go away feeling that we have accomplished something.

Health Problems of the Rural Child

DR. LEE FORREST HILL, Past President, American Academy of Pediatrics, Des Moines, Iowa: In my assignment to point out the health handicaps imposed on rural children by the maldistribution of medical services and facilities between rural and urban areas, I am confronted by the difficulty that no standard has been set up defining the kind and amount of medical care that a child should receive, whether the child lives in the city or in the country. Were such a standard available, it would be simple to list categorically the deficiencies of the health services available to the rural child. It seems reasonable in the absence of an established standard to use the urban child under pediatric care for comparison with the rural child in order to bring out the health problems of the latter.

The pediatricians of the nation are located almost exclusively in the larger cities. Less than one fourth of the child population receives its medical care from pediatricians. Over three fourths of the children in the United States are dependent on general practitioners for supervision of their health. General practitioners, receive, even in recent years, only about two months of training in pediatrics during their single year of internship. I agree with those who feel that the general practitioners are doing an excellent job and that what is needed is more of them and more of them in rural communities. But if the health problems of the rural child are to be met adequately it is essential that the general practitioner of the future receive more pediatric training than has been provided for him in his medical school education and in his internship in the past. The current movement toward two year internships for the general practitioner, four to six months of which would be spent in pediatrics, would appear to be a long step in the right direction.

Among the health problems of the rural child, first is the relative unavailability of the preventive services. Nearly one half of the average pediatrician's practice is devoted to health supervision of well infants and children. Customarily, infants are brought to his office monthly for examinations during the first year, every three months during the second year, every six months from the second to the fifth year and at yearly intervals throughout the remainder of the growing period. The purpose of such regular examinations is to appraise the adequacy of growth and development as shown by physical measurements and by mental and motor achievement. Thus disease may be detected in its incipiency and corrective measures instituted before irreparable organic damage has resulted.

A careful physical examination is performed at each visit, including acuity of vision and hearing tests at or near the beginning of the school years. Simple laboratory tests of the urine and blood are done, and tuberculin tests are made at intervals of three years. Immunization procedures are carried out at the proper age in infancy, and appropriate booster injections are given in later childhood. The adequacy of the diet, including vitamin and mineral supplements to meet nutritional needs as these vary with the growth periods, is reviewed at each visit. A final and most important phase of the health examination is the parent-physician conference in which parents are instructed in what to expect in the way of behavior at the various age periods and advised as to how each major situation should be met. The prevention of emotional maladjustment in the home, at school and among playmates is an important function of the regular health examination.

Obviously this sort of medical care is difficult for the rural child to obtain. The busy rural general practitioner just has not had the time, even if he has had the training, to provide the rural child with some important phases included in the periodic health examination. In the cities clinics and well child

conferences are available to the children of less well-to-do families. In many states health departments sponsor child health conferences in rural areas, but the bulk of rural children are still without the advantage of this type of health supervision. This is equally true of the school health examination. Until general practitioners are available to provide preventive health services for rural children, steps should be taken to increase the number of well child conferences and to establish more widely the school health examinations.

A second major health problem faced by the rural child is the relative unavailability of the specialist's consultation services. From the more remote areas the job of getting an ailing child to a specialist in a medical center is not easy, the result being that the visit may be delayed or not even attempted. Methods have been suggested, some of which are already in operation, for bringing to the rural areas more adequate consultation service.

A third health problem in which the rural child is handicapped compared to his urban contemporary is the matter of the facilities for the treatment of the more serious illnesses. Scientific medicine has made great advances in recent years. Today more than ever before the laboratory is essential in the diagnosis of disease and in the management of treatment. But for rural children no such nearby facilities are available.

The Hill-Burton Hospital Construction Act is aimed at remedying this situation. But the rural general practitioner must be supplied with more than hospital beds if his child patients are to have the full benefit of what modern medicine has to offer. He must be given all the necessary adjuncts with which to do his work. Pediatric hospitals can be of great help by rotating members of their resident staff through these remote hospitals. Thus, plus weekly or semimonthly visits to the outlying hospitals by a senior member of the staff for the purpose of making rounds or holding a clinic for the neighboring general practitioners, would do much to provide the rural child with the advantages enjoyed by the urban child.

A fourth health problem, the premature infant, offers a particular hazard in rural areas. One half of the deaths in the neonatal period occur among prematurely born infants. Many of these lives could be saved. But, special facilities and personnel specially trained in the care of the premature must be provided. The American Academy of Pediatrics, through its Committee on Fetus and Newborn, is engaged in a project looking to the establishment of premature stations at strategically located centers in every state in the country. It is contemplated that ambulances equipped with incubators and oxygen will be made available to transport the premature infant from the place of birth to the premature station.

There are many other health problems which residence in a rural community creates for the child, but perhaps these I have mentioned are sufficiently illustrative to point up the need for instituting measures which will lessen the gap in medical advantages between the rural and urban child. The health problems of the rural child can be met in part at least by the attainment of some or all of the following objectives:

1. An increase in the number of physicians in rural communities.
2. Increased emphasis on pediatric teaching in undergraduate medical education.
3. Lengthening of internship for the general practitioner going into rural practice to two years, six months of which should be devoted to pediatrics especially adapted to the problems of the rural child.
4. Construction of rural hospitals and health centers as proposed under the Hill-Burton Bill with provision being made for adequate laboratory and other technical personnel.
5. Rotation of pediatric residents from approved hospitals in pediatric centers through these rural hospitals for the benefit of both the residents and local doctors.
6. Frequent visits by consultants from the staff of the pediatric hospitals to the rural hospitals for ward rounds and teaching clinics.
7. Increased provision for postgraduate education in pediatrics of rural general practitioners both at the pediatric center and in the local communities.
8. Development of more adequate school health services by physicians trained for this purpose.
9. Coverage of all counties by public health services, including the public health nurse.
10. Establishment of premature stations wherever needed in each state.

I have read the booklet prepared by the Committee on Rural Medical Service of the American Medical Association. It is gratifying to learn of the seriousness of purpose with which the problem of extending better medical care into rural communities is being attacked. The reports of the chairmen of state medical committees and those of representatives of the medical schools clearly indicate that remarkable progress is being made. The American Academy of Pediatrics will be happy to contribute its services in every way possible toward improving the health of rural children.

MRS. CHARLES W. SEWELL, Administrative Director, the Associated Women of the American Farm Bureau Federation, Chicago: According to a statement made last September, 53 per cent of the children who were then entering the nation's schools were from rural homes. David S. Jordan remarked that the education of a child, and I would like to add, his health, begins a hundred years before his birth. With fewer hospitals and clinics to provide prenatal care available, the rural child often has handicaps dating from birth that penalize him for an entire lifetime. About seven eighths of the children born in cities, but less than half of the rural children, see the daylight first in hospitals. Authorities tell us that more than 40 per cent of all farms are still without electric power. Hence, in many sections children lack proper light for studying. Too many farm homes are still without running water, sewage disposal and other sanitary safeguards. I believe that the day is not too far distant when we will require the nutrient content of the soil on which our food is grown to be declared to allow us to know we are buying food and not filler. We used to say "children are safer in the country," yet the National Safety Council tells us that farm accidents are among the highest that they have recorded.

The migrant child of rural America is another new development. Health needs are not closely supervised, and many disastrous epidemics are directly traceable to these children who come and go as the seasons change and the families move on to work in other harvests. I believe we can make the needed changes to keep the rural child happy and healthy if we work together—the medical profession, the farm people, the public health officials and the citizenry. The fine program in health carried on by our national 4H clubs demonstrates what can be done. My own organization has this year raised $12,500 to be used in the establishment of scholarships or fellowships in research on poliomyelitis. We need better distribution of doctors, dentists, nurses and hospitals. We need better public health facilities and more programs in school health.

Many state organizations have taken the lead in securing legislation that will protect the health of the rural child. Many have promoted the prenatal plans for better care. We need your help to establish hot school lunches for all our children. Agriculture should not be expected to carry the load alone. As a representative of the American Farm Bureau Federation, I wish to express our appreciation to this committee for helping the American Medical Association and perhaps all of America to rediscover rural America and its children.

Study of Child Health Services

DR. CROCKETT: We next have on the program three papers on the study of child health services.

DR. JOHN HUBBARD, Director of Child Health Studies, American Academy of Pediatrics, Washington, D. C.: (Read his paper, which will be published in full in THE JOURNAL.)

DR. KATHERINE BAIN, Director, Division of Research in Child Development, U. S. Children's Bureau, Washington, D. C.: Economists have pointed out that children in the city have and children in the country have not, but the separation of urban from the rural population is not nearly as clearcut as this in regard to medical care. People do and should cross county lines or even state lines in seeking adequate health services. How much migration actually takes place for treatment and diagnostic service we do not know, but the big urban center certainly supplies not only the population of that county but the surrounding area. Persons in a so-called rural county adjacent to a metropolitan county have more chance of getting adequate medical care than those in an outlying county. This county grouping which Dr. Hubbard has described was devised to take into account the factor of accessibility of care, but with this factor of accessibility weighed, you have seen the extreme maldistribution of personnel and hospitals that exists. Now what does this maldistribution mean in terms of actual care received by children?

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Previous studies such as the National Survey of 1935 used the device of a personal interview with a sample of the population. The academy's study went at the problem from the other end. The study gathered data from the persons rendering service, from the physician, hospital, clinic and so on. The study has collected these types of data for each county in the United States, all the visits made by the physician to the child's home or the office visits of children on an average day, all the children in hospitals in an average day, all the children visiting clinics on an average day—these taken together are an index which we have called the total volume of medical care. This is fairly complete coverage, and because coverage is complete, we are justified in making certain rates against the child population. We find that a thousand children in Illinois or in Maryland and the District of Columbia have, on an average day, twice as much medical care as a thousand children in Alabama. Are the children of Alabama less in need of medical care? I would doubt it. One is forced to accept the fact that the children of Alabama get not more than one half as much care as they actually need.

With regard now to total volume of medical care using the county group classification, on the basis of eight states selected because they are fairly representative of the United States as a whole, we find in the metropolitan and adjacent counties the rate of total volume of medical child care on one day is 17 of 1,000 and the rate for the isolated counties is 12.5. Again it is shown that the children in or near cities have more medical care than the children in the outlying district.

In addition to more in quantity there is also more in quality. The metropolitan and adjacent counties have more hospital, clinic and specialist care. Children in and near cities have twice as much hospital care, five times as much clinic care and four times as many visits to the pediatrician.

Dr. Hubbard has shown the maldistribution of doctors and hospitals. I have shown what maldistribution is in terms of the amount of medical care. What does this mean in terms of health for children? What is the end result? I don't believe that we know the whole answer. One item of information: Infant mortality for the five years of 1941 to 1945 was 38 for the metropolitan area and 47 for the isolated county. The infant mortality rate has long been considered a delicate index of the health of the community. I think it is fair to assume that one important cause of the more favorable infant mortality of the metropolitan and adjacent counties was the quantity and quality of available medical care.

DR. HENRY G. PONCHER (Chairman, Illinois Child Health Studies, American Academy of Pediatrics): The need for improvement in the medical care health supervision for children has been established by the survey. There is a dramatic contrast between the adequacy of all health aspects and facilities for children in urban and isolated rural areas. This includes all the services, physicians, dentists, hospital facilities and community health services. It is agreed that the mental health of adults depends on the care they received as children. Health depends more on well trained doctors than on improved medical facilities and more on greater availability of community health service than on hospital facilities when children are sick. While improved physical facilities are important, the judgment and the skill of the individual physician in matters pertaining to child health is paramount. Such skill is the result of training and experience. It has been shown that the general practitioner provides 75 per cent of the medical care for children, yet nearly one half of the physicians in the survey report that they have had no hospital training in pediatrics. I think the general practitioner has done an excellent job, considering the task with which he is faced. The point I would like to make is that to provide one of the important improvements in medical care for rural children we have to give some definite consideration to medical education. As a result, the American Academy of Pediatrics has seen fit to appoint a Committee on Child Health Improvement representing various parts of the country. The further step then taken is to appoint a Committee on Pediatric Education. It is becoming increasingly apparent that the planning of undergraduate and graduate courses must provide for the general practitioner in the field of pediatrics in order to fulfil the health needs of the community.

I would like to point out just how the survey was started in Illinois and the mechanization by which some help can be obtained for the definite situation. This study was channeled through the Illinois State Medical Society because there is an organization within the state composed of ten councilor districts. The whole study was based on the fact that when the results were obtained they would be returned to the local areas for planning in public health, so that while we not only have details with regard to child care, we have an organization to follow-up with that data.

In the southern part of the state there is a definite area almost exclusively isolated. There is no consultation service and no licensed pediatrician in that area, and as a result the Illinois State Medical Society has voted to establish a diagnostic center in that area. That is one of the palpable means by which rural help can be obtained.

A pamphlet put out by the Illinois State Medical Society is entitled "Doctors and Horses." It is an excellent, concise description of how improvements may be brought about.

Education is an exceedingly important factor in this problem. The College of Medicine of the University of Illinois has seen fit to admit 50 per cent of its students from urban areas; 50 per cent of the places are saved for those outside of Cook County. Furthermore, the Illinois State Medical Society has gotten together with the Illinois Agricultural Association and raised $100,000 to send young men from rural areas to medical schools with the idea that those men are more likely to go back to rural areas. Another thing that has been done by the Department of Pediatrics is to provide that our men must spend at least six months of their pediatric training in a semirural area.

I would like to stress two points: first, we must improve our pediatric education and make pediatric education available to more persons who will go back to rural areas; second, the communities themselves must take the initiative in asking for improved medical facilities.

Rural Youth and World War II

DR. MAURICE H. FRIEDMAN: The people of this country have been frightened by a lot of irresponsible estimates regarding the draft figures, some of them emanating from an agency of our federal government. It is unfortunate that such frank misstatements of fact have been broadcast. It has been claimed time and time again that the percentage of rejectees from rural areas was higher than that of rejectees from our cities and metropolitan areas. I should like to emphasize the fact that the draft rejectee figures have little to do with measuring the health of any community.

I have had frequent conferences with members of the selective service administration in Washington and I should like to project for you the actual figures which they gave me and which they checked item by item with every decimal point before I came out here to talk with you.

For the United States as a whole, the number of men (white only), was definitely higher than from the cities. From the country 57.3 per hundred were accepted, and from the city, 54.7. For every section of the country, the number of men accepted from the rural communities was higher than that from the cities. The acceptance rates were lower for the purely farm population as opposed to other populations than for the remainder of the rural population. Nevertheless, the acceptance rates for farm only are higher for the United States as a whole for white men than they are for the cities. Statements that the rejection rates in rural areas were higher, reflecting poor health conditions, will have to be branded as false, if we can accept the original data of the Selective Service System. That condition does not pertain to the same extent to the Negro. The figures for the Negro show definitely lower acceptance rates for Negro registrants in all categories. Note that the farm acceptance rate is slightly lower than the urban. The Negro farm rates are even lower than the Negro rural rate as

a whole. In some sections of the country, strangely enough in the South, the rural acceptance rate for Negroes was above 59, higher than the urbanite rate, which is 56.5. The Negro rejections were largely determined by venereal disease, educational deficiencies and mental disease. Those three factors alone accounted for 60 per cent of all Negro rejections.

I made an adequate statistical allowance for errors. There were twenty-four categories of defects which could be compared in each of these states, which makes seventy-two possible comparisons. Of these seventy-two categories, in twenty-nine there was no difference whatsoever between the rural and urban populations; in twenty-three categories the rural population had definitely fewer defects than the cities, and in twenty categories the city rates were definitely lower than the country. Altogether there was no difference between the urban and rural defect rates. For most of these categories, the differences were not consistent. There were three classes of deficiencies which were consistently different in the rural and urban population. The category of eyes, ears and abdominal organs. Those three categories were lower for the rural population in all three states than for the city population. In those three categories (eyes, ears and abdominal organs) the farm and rural population as a whole had lower defect rates than the city. The differences between these defect rates were so great as to exclude any sampling error. On the other hand, there were three categories in which the rural rates were higher. Mouth and gums, throat, and educational deficiency were the categories for which the rate was higher in the rural areas of all three states.

With the cooperation of the officers of the selective service, I obtained permission to see the raw data county by county for the entire United States. I did not have sufficient time or energy to prepare the data for the entire country, but I took three representative states in this part of the country, Indiana, Iowa and Illinois. Every county had its own draft board. My problem was to select purely rural counties from purely or overwhelming urban counties. I got the census figures and I segregated those counties in which there was not a single community over 2,500 in population from those in which the populations were almost entirely urban excepting Cook County, Chicago. By counting up every defect listed in these counties in these three states, I prepared a tabulation of defect rates for these three representative states for the urban and rural populations. I took twenty-one rural counties in Illinois with the aggregate population of 422,000 and contrasted the total defect rates with those of the city of Chicago and four other urban counties. I was able to get the figures for seventeen purely rural counties in Indiana with an approximate population of 211,000 persons and contrast total defect rates with the defect rate as found in Lake County, which is almost entirely urban, and three other urban counties in Indiana. I was able to segregate thirty purely rural counties of Iowa with an aggregate population of 452,000 and contrast the figures in these counties with those for Polk County and the six other urban counties.

Tabulation of the total number of defects or the defects in one particular category is in itself no measure of the health of that community. The selective service system was not asked to evaluate the health of this country. They were asked to get combat soldiers and sailors for our armed forces, and they did that job and did it magnificently. They were not concerned with the number of other indexes of public health. What do those defects mean? Of all the defects listed by selective service, over half are structural abnormalities and have no relation to disease whatsoever. The selective service system has always been careful to point out this fact. They have said time and again that the emphasis on these defect rates has been much too great and has engendered many conclusions that are unjustifiable in regard to national health. They have said, for example, something like this; the fact that the terminal phalanx of the middle finger was missing or that a man was less than 60 inches in height were cause for rejection but in no way reflected on the health of that individual. Of these structural abnormalities, many are minor, congenital defects; a number of others are the result of injury which has been repaired, and a great many of these defects are not the result of lack of medical care but the direct result of medical care. When a limb is crushed by farm machinery and a surgeon amputates that limb, you have got another defect in the selective service system. A large segment of draft defect figures show perforated eardrums which are the result of medical care and not the lack of it.

Here is something more astonishing. Some of these defects are a measure of our good health and not the reverse. The fact that a diabetic lives long enough to be examined by a draft board is only due to the continued good medical care available in this country. Children with rheumatic heart disease carrying themselves into adult life by skilful medical care form another significant group with defects listed by the selective service system.

I should like to ask one uestion: is a corpse healthier than a rejectee with diabetes?

DISCUSSION

DR. MUENZER, Toledo, Ohio: I would like to ask Dr. Friedman why they still list hypertrophied tonsils as disease. Having examined men of two world wars, and having watched a group of athletes for twenty-five years, I have failed to find that the size of the tonsils had influence on the men. I don't think any one should hold hypertrophied tonsils as a diseased condition, as we understand the term disease.

DR. MUNDY: The proponents of socialized medicine were guilty of a great deal of ignorance or we could question their intelligent use of facts and figures which they have quoted from the draft examinations when they tried to use these figures in an attempt to put socialized medicine over in this country. They ought to have enough humility to admit that they were ignorant of those things or that they tried to slip something over.

DR. FRIEDMAN: In the selective service statistics there are several broad categories of defects, one being "throat." A large number of reported defects were hypertrophied tonsils, and I agree that it is not necessarily a disease. Various draft board examiners will record tonsils as being large or small, depending on how they feel about it. That is not an objective measurement. There are also exceedingly different policies in each area. Every defect listed was higher in Iowa than in Indiana or Illinois. One cannot compare the rural population of Iowa or the city population of Illinois, not because they are fundamentally different but because they are in a different army area. I was startled on examination of the differences in policy from one area to another. The number of large tonsils is attendant not on the tonsils but on the draft policy in that area. In the rural areas of Iowa there are more physicians than in the rural areas of Indiana and Illinois, yet the number of defects recorded was higher in Iowa, both city and country, than in Indiana or Illinois.

DR. BOIES (Minnesota): If nobody wants to ask questions, it would be nice to extend the courtesy of the floor to Dr. Friedman until the time expires.

DR. FRIEDMAN: I think it would be very wholesome if the responsible agencies in each community would get together and try to educate themselves as to how to gage the health of their community. It is not merely a question of doctors or hospitals. There are a number of other factors regarding health. Dr. Roscoe Hyde and his co-worker in Boston used the selective service statistics from that district to isolate those factors which were responsible for defects. He went back and graded communities from which these men came. The community is graded as to quality on the basis not of medical care but of per capita wealth, educational facilities, welfare activity, public works and all environmental factors which go to make a good community. Other factors that he took into consideration were housing conditions and density of population. Average income in a separate factor. We found, for example, as has been found time and time before, that tuberculosis depended more on the density of the population than on the economic status or any other separate index and that certain kinds of mental diseases were related to some factors and other kinds of mental disease to other factors. For example, mental deficiency did not occur in the Irish or the Jews. Some persons might wish that the members of the

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medical profession could convert everybody into Irishmen or Jews. Chronic alcoholism did not occur in the Chinese; it was related more to population density than to anything else. Psychoneurosis is related to other factors. It is important to remember that one cannot discount the importance of church, life, family life and other wholesome environmental factors in regard to mental disease defects listed under the nervous system. For ten years the Council on Churches of Christ in America has sponsored symposiums between physicians and clergymen to foster cooperation on this very problem. The communities as a whole would do well to recognize that.

I cite a few figures to prove that the number of doctors, although important, is not the controlling factor. During the war, when over 30 per cent of our active, young physicians were in the armed services, the civilian population had available to them less than two thirds of their ordinary supply of doctors. Over one third were in the army and navy. Despite this great decrease in available medical services, the maternal mortality in the United States dropped from 3.8 per thousand of live births to 2.1 per thousand live births in 1945. Now some would say, that if we can do so well with a third less physicians, let's get rid of all of them! That is the kind of logic that has been used by many persons who have discussed these questions. Infant mortality dropped from 47 per thousand live births in 1940 to 38.3 in 1945, again associated with or contemporary with a decrease of over 30 per cent in volume of medical service available to the civilian population of this country. Caution must be exercised. Merely because two things happened at the same time does not necessarily men that they are closely related. These various facts demonstrate that other factors than the number of doctors are important in health and that in order to estimate the importance of the services of physicians and hospitals one must make proper allowances for all the other factors which are of equal and sometimes greater importance.

DR. MARGARET W. GERARD, Institute for Psychoanalysis; Consultant for the Illinois Children's Home and Aid Society, Chicago: There is more and more talk about so-called psychosomatic medicine. All illness has to do with the lack of adequate behavior of the body, the lack of real integration of the body, which includes the nervous system and all the other organs concerned in health. Many of the diseases have psychologic elements. I would like to discuss some of the factors in the development of a healthy, well integrated individual. The pediatrician has taken over very adequately in many instances the understanding of child psychology. It is the pediatrician, and in some instances the family doctor, who is expected to give information as to how the child is to be brought up. It is in the first few years that the child is mostly influenced. Whether or not he will develop a mental disease, a neurosis or a neurotic reaction which has its somatic element, will be determined in these earl years. Great modifications will vary the ramifications of that disease, but those early years are extremely important.

In most hospitals today, children are cared for affectionately. They take food better. They develop better. We have certainly much less marasmus, perhaps as a result of that affection. We used to see marasmus many, many times in the old days. I have mothers ask, "Am I not going to spoil the baby if I let him do what he wants to do and feed when he wants to feed?" When one goes to the extreme, the later training period is much more difficult, but the child's serenity relative to comfort in living within the first year of life, if he is fed enough, if her is fondled and if he does not have periods of hunger as well as other kinds of pain, makes his psychologic attitude toward living such that he will accept training and accept the demands which life makes on him to grow up

The child with behavior problems always wants to be sick, vomits easily, is very often a child whose incentive to do the right thing is not sufficient because he hasn't had enough reason to think that doing the right thing in the living world is worth the trouble. The old methods of training instituted bowel control within the first month or so and urine control within five or six months if possible. We know now that the child is not physiologically capable of control of bowel movements at that particular age. Physiologic adequacy in relation to the rectal functions and renal functions do not come into operation until the fifth or sixth month and the urinal capacity occurs around the latter part of the first year. A child trained earlier develops difficulties relative to his feeling of capacity, and therefore the child is apt to change his whole attitude toward adaptation. Children develop the feeling of inferiority as the result of this early training. Such children give up learning adequately. They don't achieve as well as they should because they have learned early that they can't do the things they are expected to do. We find children rather despairing about this capacity, and therefore some of the illnesses which come on without any apparent reason and which are fairly resistant to the doctor's treatment have some of their background in the relationship of the child to the parent. Such training should always be tuned to the child's developmental capacity. When he is expected to do something beyond his capacity, he is going to get into difficulties. Not only does this training have to be carried on relative to the capacity of the individual to develop good, healthy habits and social relationships and good physical stamina, but it has to be fairly consistent. We get an inconsistency in our city parents, by whom training is carried out for a day or two; then the parent is busy and doesn't bother. For the next two or three days the child doesn't know what is expected of him. He learns that under some circumstances he doesn't have to do what is expected of him under other circumstances and he never develops adequate habits. He hopes to manipulate his life so that the circumstances which he can protest are present.

Some persons have psychiatric hypertension which is partly relative to their more aggressive reactions. They are persons who have aggressiveness just under the surface. When one follows back into their history one finds a situation in which there was an inconsistency in their training as one element in the difficulty; inconsistencies which made their habits rather fragile, habits which were carried through only under certain circumstances. If the person is not quite sure whether he is going to blow up, his parents have not been consistent in their demands on him. He is under the tension of keeping himself under control, and the result of this tremendous tension is a secondary somatic reaction or secondary sympathetic reaction which involves the blood vessels—a vascular reaction to a psychologic condition. We all are aware of these simple physiologic things. We see them all the time.

The important factor is proper training at the proper time and consistently. A child needs a certain amount of punishment to make him realize that there are certain things he must really do or life will be too difficult. A child can't grow up by love alone. Children develop much better with a certain incentive than they do without any incentive. The main incentive among children is praise.

Another important point is the role that sex education plays in the development of the child. Youngsters get in difficulty because of misinformation which they receive from companions because parents are not willing to talk to them and misinformation which they got from visual scenes which they misinterpreted wrongly. Therefore we find that the child, to be physically and mentally healthy, must have answers to questions about how the body functions relative to any kind of physiologic activity as well as reproduction. He is capable of understanding it without any harm if his questions are answered scientifically. He will get into difficulty without information, because his curiosity leads him astray. Al lkinds of abnormalities develop in youngsters as a result of misinformation. There are books now which are very helpful in letting parents understand how easy it is to answer a child's questions scientifically.

I would like to discuss the factors relative to physical conditions at adolescence, but I haven't time enough. That is the point at which we see many psychosomatic reactions. It is the period when the early bringing up begins to show its bad effects and when the children begin to develop not only mental disease or neurotic diseases, but somatic diseases of psychogenic origin

(To be Continued)

JOINT COMMITTEE FOR THE COORDINATION OF MEDICAL ACTIVITIES

Report of Meeting in Chicago, Dec. 6, 1947

(CONDENSED FROM THE OFFICIAL MINUTES)

The Joint Committee for the Coordination of Medical Activities met Saturday, Dec. 6, 1947, in the Board Room of the American Medical Association Building in Chicago. The Chairman, Dr. Ernest E. Irons, called the meeting to order at 9:45 a. m. Members and liaison members present were:

Dr. Irvin Abell
Dr. Donald G. Anderson
Brig. Gen. George E. Armstrong
Dr. Walter L. Bierring
Dr. G. O. Brown
Mrs. Kity Ives Coleman
Mr. Ralph G. Creer
Mr. Graham L. Davis
Dr. W. Palmer Dearing
Capt. William E. Eaton
Dr. Lester J. Evans
Rev. John P. Flanagan
Dr. J. F. Hammond
Dr. Fred V. Hein
Dr. Elmer L. Henderson
Mr. J. W. Holloway Jr.
Dr Hugo V. Hullerman
Dr. Ernest E. Irons
Dr. George F. Lull
Capt. Frederic L. McDaniel
Dr. J. J. Moore
Dr. H. B. Mulholland
Dr. Walter L. Palmer
Dr. James E. Paullin
Dr. Carl M. Peterson
Dr. Richard J. Plunkett
Col. Paul I. Robinson
Capt. Robert V. Schultz
Dr. R. L. Sensenich
Dr. E. R. Serles
Dr. H. H. Shulders
Mrs .M. Virginia Shuler

NAVY TRAINING PROGRAM FOR MEDICAL AIDES IN THE PACIFIC ISLANDS

Dr. James E. Paullin moved that the Joint Committee heartily endorse and recommend the training program in the Pacific islands, as outlined by the Bureau of Medicine and Surgery, and that a subcommittee consisting of Dr. Edward L. Bortz, President of the American Medical Association, Dr. Lull and Captain Schultz be appointed to suggest a name for the school and its graduates.

CONFERENCE ON COOPERATON OF THE PHYSICIAN IN THE SCHOOL HEALTH AND PHYSICAL EDUCATION PROGRAM

Dr. Fred V. Hein, a member of the staff of the American Medical Association's Bureau of Health Education, presented the following statement:

It was felt that the American Medical Association was rightfully concerned with school health problems and programs, first because there are an estimated 20,000 physicians in the United States who are serving the public schools directly as either full time or part time school physicians. In addition, many thousands of physicians are concerned with school health as it relates to the care of the students and their families. With these facts in mind a Conference on Cooperation of the Physician in the School Health and Physical Education Program was arranged to be participated in by physicians and educators and was held in Highland Park, Ill., Oct. 16-18, 1947. Invitations to attend were sent to state medical societies, state departments of health, state education associations and some national voluntary health agencies. One hundred and twenty persons representing ninety agencies or organizations in thirty states and one territory attended the Conference, and twenty-six consultants drawn from the fields of public health, public education and medical education participated actively. The main purposes of the conference were to implement the health service divisions of the public schools, to provide for an interchange of information among the various personnel and to define the role of the physician in relation to health aspects of physical education and athletic programs. School health policies have been rather well established, and authoritative documents that set forth those policies are available; however, there is a great gap between the practices in the schools and the established policies.

Principal recommendations emanating from the conference which might be of interest to this Joint Committee are: 1. Wherever there is a school, the local community should budget for a school health program and in that budget there should be adequate provision for the salary of a well qualified medical adviser on either a full time or part time basis. 2. The physician's time in the school can be best utilized if he is employed as a medical adviser rather than as a mere medical inspector. 3. Routine medical examinations should be spaced at three year intervals during the school life of the child. 4. The schools should definitely discourage the practice of postponing inoculation to the period of school entrance, because immunization is necessary for protection particularly in infancy and in the preschool period. 5. Cumulative health records should be a part of the child's total school record throughout his school life. 6. Physicians and physical education teachers should arrange joint meetings for discussion of mutual problems.

In general, I think it can be said that the educators were most receptive to the American Medical Association's sponsorship of this program. The reactions have been most excellent. A brochure containing the full recommendations of the conference and the section reports it being published and will be available for wide dissemination to schools, health repartments and medical groups throughout the country.

THE GENERAL PRACTITIONER

Dr. Bierring submitted the following report for the Subcommittee on a Specialty Board for General Practitioners:

Since the last meeting of this Joint Committee, a number of developments have taken place. One was a request from the secretary of the American Academy of General Practice to a number of the members of the Joint Committee and to various prominent physicians to become members of a Coordinating Committee for General Practice, the composition of which would be similar to that of this Joint Committee. The list of those invited included Gen. Paul R. Hawley, Dr. George F. Lull, Dr. B. R. Kirklin, Dr. William S. McEllroy, and Dr. James B. Waring. Some accepted the invitation; others did not. It appears to be an interesting gesture. The membership of the academy, which was organized barely six months ago, seems to have grown prodigiously, and already an executive director has been employed as a reputedly extremely high salary.

Other organizations in the field of general practice are being promoted, but it does not seem that the specialty board in Indiana—the Indiana Board of General Practice—is progressing very rapidly. I am not certain that there is a need for all these outside organizations. Traditionally and historically, the American Medical Association has been the organization for general practitioners and has within itself the machinery, and the inclination to bring about a definite elevation of the status of the general practitioner.

Dr. Sensenich informed the committee that the president of the American Academy of General Practice had recently stated that the formation of the academy is a response to an insistent demand o nthe part of general practitioners that there be a specific organization that will look after their own particular interests. Dr. Sensenich also said: In conversation with the president of the academy, I called to his attention the fact that practically every organized specialty group had early in their existence taken the position that they were not policy-making bodies; I told him that I hoped the new academy would not have some other conception, and he said there had been no thought of such a position.

Dr. Abell remarked that he had heard that the general practice section of the Los Angeles County Medical Association has established a subsection on surgery! Dr. Paullin asked in what part of the country the movement is most active, and Dr. Lull replied that it is rather general throughout the country.

Dr. Henderson spoke as follows: This movement is pretty general throughout the country. On the surface, at least, it does seem to be a movement in conflict with the American Medical Association. The American Medical Association is the general practitioner's organization; anything that any other organization can do for the general practitioner, the American Medical Association can do and is doing. It seems to me that it would be a mistake for any official of the American Medical Association to become a member of any other type of general practitioner's group as organized today.

According to Dr. Moore, the academy says that it is not in opposition to the American Medical Association because one of its membership requirements is membership in the American Medical Association. Dr. Palmer suggested that perhaps one of the motivations for the organization was an attempt to bring pressure on the hospitals to resist the efforts of the American Medical Association to elevate hospital standards. Dr. Bierring thought that there might be some ground for complaint but said that in his opinion the American Medical Association is doing all it can for the general practitioner. He remarked that one of the first objectives of the academy is to promote and maintain the "general practice of surgery," and he wondered what constitutes the general practice of surgery!

Dr. Anderson stated: The Council on Medical Education and Hospitals is doing nothing that would in any way exclude the general practitioner from the hospitals. In certain institutions the lay boards have interpreted the Council's "Essentials" to mean that only diplomates of the specialty boards should be on the staff; they have been in error, and the Council has so informed the institutions.

TAFT-SMITH-BALL BILL VERSUS WAGNER-MURRAY-DINGELL BILL

Mr. J. W. Holloway Jr., director of the American Medical Association's Bureau of Legal Medicine and Legislation, presented a statement contrasting the Taft-Smith-Ball bill and the Wagner-Murray-Dingell bill.

COMMUNICATION FROM MISS MARY SWITZER

The Chairman asked Dr. Shoulders to read a letter which Miss Mary Switzer, assistant to the Federal Security Administrator, had sent him in reply to his request that she discuss at this meeting matters of current interest, particularly the Bipartisan Committee on Reorganization of Federal Agencies,

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which Hon. Herbert Hoover is chairman. The letter reads:

As you know, the American Medical Association is one of the sponsoring organization of the National Conference on Family Life to be held in Washington, D. C., at the White House, May 6-8, 1948. At a recent meeting of the Board of Trustees, Drs. Wingate M. Johnson and James R. Miller were named the official representatives of the American Medical Association. In addition to these official representatives, I hope that other members will be asked to serve on various committees working up material for presentation at the conference. Our group may be interested in just how comprehensive the program o fthe conference will be. The subject matter has been divided roughly into three large headings: (1) background —which will be a description of the modern American family, where it lives, what its background is, income distribution, legal status, and the like; (2) the family as part of the social group—which will be concerned with what the psychologists call "the dynamics of family interaction," how they form, mature and function, probably an anthropologic approach in simple terms: this section will deal with the interspersonal relations in family living and so on, and (3) action areas of family life, of which health is one. Others include home management, housing, education and social welfare.

In addition, the following five points will be woven into the outline: (1) the role of spiritual values in the development of stable family life; (2) the meaning of democratic family life; (3) trends in ascandant-submissive roles of husband and wife, factors relating to success and failure in marriage: (*a*) economic living and social factors, and (*b*) women's conflicting values; (4) dominant patterns of authority and discipline in the family, and (5) cultural pressures on individual members of the family.

The Chairman regretted that Miss Switzer had omitted a reply with respect to the Reorganization Committee, and Dr. Dearing said that little is known about it as yet, except that a bill has been introduced in Congress to provide additional funds for the committee's work. The Chairman announced that the subject would be placed on the agenda for the next meeting.

HOSPITAL SURVEY AND CONSTRUCTION PROGRAM

Dr. Dearing presented the following information with respect to the Hospital Survey and Construction Program:

The Hospital Survey and Construction Program was a subject of much discussoin at the recent conference of the state and territorial health officers; The response of that group is indeed gratifying and encouraging.

Thirty state plans have been submitted and twenty-three have been approved by the Surgeon General, involving an estimated cost of $42,000,000. Actually, fifty projects have been approved for construction totalling $34,730,000, an average of about $700,000 for each facility. There was concern in the beginning as to whether the facilities would be placed in the areas where they were most needed, but the early projects have been satisfactory in that respect. The state and territorial health officers' organization recommended that Congress be asked to provide needed funds and to expand the authorization.

The final steps in the preparation of a state plan are of considerable interest. Public hearings are held before the state plan is approved after the state has decided on its various hospital areas and how many beds they are entitled to; these matters are put before all concerned in open meetings which usually have been well attended and have been quite aceable.

One worry is the continuing increase in costs, which may make project estimates of the present or of six months ago out of date when the time comes to allot a contract. The federal contribution of one third can be increased by a supplementary allotment, but the state or local area will have to meet the costs.

Dr. Dearing showed the Committee a booklet entitled "The Hospital and Your Community," which has just been published by the Division of Hospital Facilities of the Federal Security Agency in an effort to stimulate interest.

Discussion on the Hospital Survey and Construction Program was as follows:

MR. DAVIS: The high cost involved is one of the principle difficulties encountered at present. At a meeting of the Rural Health Subcommittee of the Federal Hospital Council about a week ago the program was discussed at some length. Following are some reasons for the high costs: Labor in the building industry is about 38 per cent as efficient as before the war. Prevailing wages in the district must be paid in order to get federal assistance; the Department of Labor takes the highest prevailing wage in the state as the standard, and that is applied in small areas in the rural parts of the state. The problem of the local community's raising enough money is serious and is delaying construction programs. Because of increased costs, these communities must raise twice as much as they planned to raise. It is a question whether or not the poorest communities, even with the generous assistance of the federal government, would be able to raise two thirds or the cost. North Carolina and, I think, Mississippi have appropriated state funds. It is possible that we shall not get hospital facilities under this program as at present outlined in those poorest areas where the need is greatest.

DR. DEARING: The State and Territorial Health Officers Association recommended (1) that the federal government be permitted to provide the cost of administration by the state agency because state funds in many instances are not adequate and (2) that the law be amended to permit the states which have not enacted enabling legislation by July 1, 1948, but which will pass it later, to come under the benefits of the act.

DR. SENSENICH: If we are going to seek methods of making the program more effective, it is important to know what is blocking it now. It might be of interest to have that information, because local medical societies should properly stimulate interest where the program has bogged down.

DR. HENDERSON: It failed in Kentucky for some technical reason but probably will be approved in January or February 1948.

DR. BIERRING: In Wyoming the enabling act was opposed by the state medical society, and in Kentucky it failed or was not considered by the last state legislature.

THE NURSING PROGRAM

The Chairman asked Dr. Lull to inform the Committee regarding the work of the American Medical Association Committee on Nursing Problems.

Mr. Davis then stated: We in the hospital group want to compliment Dr. Thomas P. Murdock, chairman of the Committee on Nursing Problems, on the very fine way in which he conducted the meeting of his committee, mentioned by Dr. Lull, which some of us present today had the privilege of attending. Six or eight months ago the American Hospital Association became worried about the way that the medical profession and the nursing profession and the hospitals were all contending with each other in the public press. Articles appeared in which hospitals were blamed for exploiting the nurses, etc., and we suggested that there be a conference of five representatives from each group—the nurses, the physicians and the hospitals. The American Medical Association in the meantime had appointed its Committee on Nursing Problems, and that committee at the meeting in November decided to recommend that the American Medical Association be represented in the proposed conference. We in the hospital field hope that the conference of fifteen representatives, going along at the same time with this national study, will be in position to bring out a concrete program for nursing education and nursing service in the future that all of us can endorse.

RURAL MEDICAL SERVICE

Dr. Mulholland presented the following report:

The Committee on Rural Medical Service has participated in two regional conferences organized by the Council on Medical Service of the American Medical Association, one of which was held in Atlanta, Ga., and the other in New Orleans. The Committee has received reports of activities of rural health committees from forty-five states and Hawaii. It is obvious that the information with respect to rural health is slowly but surely infiltrating the state medical associations. The deans of the medical schools were asked to send to our Committee any information they had with reference to the activities of their schools in regard to rural health. As a result, it has been found that five medical schools provide scholarships for students who will promise to practice in rural areas. Som eof the schools have preceptorships for senior students, who are sent out for practical experience with a rural physician. A good many have or will have coordinated, correlated internships in rural hospitals, and it is hoped that this will help the problem of general practice. Some of the schools are including courses taught by general practitioners. The program of the National Conference on Rural Health, to be held in Chicago February 6 and 7, is now in print. It has been prepared with the cooperation of the American Academy of Pediatrics. Some two thousand invitations to attend the conference have been sent to farm groups and to congressmen.

Dr. Evans spoke as follows on the matter of scholarships for students who will promise to practice in rural areas:

One trouble with the scholarship plan is the difficulty of asking a boy to commit himself before he really knows what medicine is. Certainly that became evident in the experiment of the Commonwealth Fund. Then, there is the problem of the physician going into the smaller communities and, while they had had a good hospital experience of two years or more, nonsurgical primarily, wanting to do surgery. Many of those who benefited from the Commonwealth Fund scholarships served their three years and went back into urban life. Another real difficulty is finding a way to help the right person to get a medical education. I personally feel that any help given to enable young physicians to practice in rural areas should come primarily in the graduate eriod. It is not easy to ask a student in the undergraduate period to commit himself to a future career. What might be done in the graduate period, I do not know. There have been several suggestions; certainly the attempt being made in Colorado, where they are setting out on a graduate training program for the general physician, is good. It will be interesting to see how the various state plans work; it is obvious that something of that nature ought to be tried, but I hope they will not all follow the same pattern.

THE WORLD MEDICAL ASSOCIATION

Dr. Henderson presented information with respect to the World Medical Association.

GRADUATE EDUCATION FOR MEDICAL OFFICERS

Dr. Irons presented the following report:

Dr. Sensenich and I went to Paris with Dr. Henderson and Dr. Bauer not only as alternate representatives of the American Medical Association to the organization meeting of the World Medical Association but also as an informal mission with Dr. Henderson, to investigate the opportunities for professional experience of medical officers in the American zones of occupation.

A Conference with the Surgeons General of the Army and Navy was held some time ago, and at Atlantic City, N. J., in June there was a meeting with the Secretary of War and the Assistant Secretary of the Navy. One of the problems of the Army is that the United States must maintain troops in Europe for a number of years; this will require medical officers, who will come largely from the younger group. At present, in some regions in the occupied zones there is a good deal of unhappiness among the younger medical officers, and it was felt that if by some means we could help the Surgeon General to improve the educational opportunities

which these young men will have, the European service might be made attractive to young officers.

This was an informal mission undertaken with the approval of the Secretary of War and the Surgeon General of the Army. We were not an inspection group but merely wanted to find out what the opportunities are and what we could do to help. We received most helpful and cordial cooperation from all medical officers and from line officers as well. General Noyes, chief surgeon, European theater of operations, and all his officers were wonderfully cooperative. General Hayes in the Austrian Command already has a program in operation, and this has been helpful to his younger medical officers. The program was outlined by the three of us, Dr. Sensenich, Dr. Henderson and myself. We sent a memorandum to the Surgeon General and also to the Council on Medical Education and Hospitals. It will require a good deal of administration, care and thought, but we believe that the opportunities for educational advancement in universities such as those of Vienna, Heidelberg and Berlin will be developed so that the younger men, while on duty, can get further medical education of a type for which we ourselves had had to pay out money.

Colonel Robinson read the following statement on the Medical Department plan for supervised professional experience in the United States occupation zone in Germany:

I am sure that you gentlemen are well acquainted with the shortage of professional personnel in the Army Medical Service. This shortage is greatest in respect to the number of men who are qualified to perform the services of experts in the various special fields. In order to overcome this shortage the Surgeon General has been forced to train a large number of partially qualified experts in the United States for the purpose of completing their formal training. Thus it has been necessary to staff the hospitals in foreign theaters with young medical officers who are the product of the Army Special Training program. This lamentable situation will continue to exist for eighteen to twenty-four months unless some solution can be devised. It is believed that the situation may be improved somewhat by the provision of opportunity for graduate professional training and experience in this area. With this in mind General Bliss requested Drs. Elmer L. Henderson, R. L. Sensenich and Ernest E. Irons, who were visiting this area in connection with the organization of the World Medical Association, to investigate the possibilities of establishing graduate medical training in our Army hospitals. These gentlemen made a very thorough study and rendered a comprehensve report. I would like to take this opportunity to thank Drs. Irons, Henderson and Sensenich for this valuable service. In addition Drs. Irving Wright and Edmund Horgan spent a month in surveying the medical service of this theater and submitted certain recommendations regarding the possibilities of such a program.

After a thorough study of these reports and consultations with Dr. Byrl Kirklin and Dr. Frode Jensen, who was formerly associated with the Council on Medical Education and Hospitals, the Surgeon General has decided on the following plan:

1. In order to obtain a higher type of experts for this area opportunities will be made available for persons who have completed their formal training requirements to obtain supervised experience in the fields of internal medicine, general surgery, orthopedic surgery, obstetrics and gynecology, pediatrics, psychiatry and radiology at selected hospitals. It is not believed to be possible to fulfil the requirements for approved formal trafning in each specialty at these hospitals. However, supervision may be provided by means of visiting consultants in these specialties, who will volunteer for service in Germany for periods of at least one month and who will thus be able to visit each of the selected hospitals at frequent intervals. It is hoped that we shall be able to maintain at least one consultant in each of these fields in Germany at all times. A number of outstanding men have already volunteered. From the previously mentioned reports it appears that there is adequate clinical material available for the program. The specialties named are those in which the needs for qualified experts are most critical.

A few residents who are completing their training in January and July have signified their interest in these opportunities. Such persons will be commissioned in the Medical Corps Reserve with the rank commensurate with their age, training, experience and previous military service. When commissioner they will be ordered to active duty for periods of one, two or three years and assigned to duty in their specialty at the place of their choice.

When fully developed, the program will be made known to the Council on Medical Education and Hospitals of the American Medical Association and to the Specialty Boards concerned. Full data on each hospital together with the amount of supervisio nin each case will be provided. Every effort will be made to have these hospitals registered with the American Medical Association. It is hoped that this arrangement will meet with the full approval of these agencies, so that those who take advantage of these opportunities will unquestionably receive credit for the time they spend in Germany toward the limited practice requirements for admission to their examinations.

Providd this plan is successful and we are able to pursuade these men to remain at their hospitals for sufficient length of time, we shall then consider the development of a formal training program. Since most of the Specialty Boards require five days of teaching service per week by Diplomates of their respective boards, it is obviously impossible to establish formal training in Germany at the present time. The large majority of Army Board Diplomates must be utilized within the program being conducted in the United States in order to maintain this program at the highest possible educational level. I sincerely request the cooperation of everyone present in support of this program, so that we may render an adequate medical service to our Armed Forces and their dependents in the European theater of operations.

Dr. Sensenich said that an attempt had been made to build up a similar program for the Navy, but that the Navy's problem is much different; he believed that an interest might be built up in medical careers in the Army and Navy so that service will be more attractive.

OUTBREAKS AMONG THE NEWBORN IN HOSPITALS

Mr. Davis, who had requested that the subject of outbreaks of diarrhea among the newborn in hospitals be placed on the agenda, offered the following statement:

This is a problem that is giving hospitals great concern; statements have appeared in the newspapers to the effect that thousands of babies are dying in hospitals from diarrhea; a rather rough article was recently printed in *Look Magazine*. Some of the criticism possible is justified. In Michigan five or six years ago it was thought that we were on the trail of the bug that causes diarrhea, but the cause of infant diarrhea has never been found. An outbreak at St. Lawrence Hospital in Lansing caused the state health department to interest itself, and I think that it has been pretty well established from that deparmen's investigation that the infection was right there in the hospital itself. I suggested that perhaps what was discovered might be useful and that the national health organizations might bring out joint statements as to what has been discovered about the prevention and control of the disease. The report on the Lansing outbreak is being written up in a series of articles to appear in the journal of the American Hospital Association. A joint committee of the American Hospital Association and the American Public Health Association is studying the matter, but I think we need greater cooperation from the medical profession and the public health authorities. I am telling you about it now in the hope that before very long this Joint Committee might make recommendations whereby better support could be obtained from the medical profession.

WASHINGTON LETTER

Senator Langer Would Compare Nation's Expenditures on Animals and Human Beings

Sen. William Langer, Republican of North Dakota, has proposed a comparative study be made of the amount of money the federal government spends on the health of hogs, cattle and other livestock and the total spent on human beings.

Veterans Administration Staff Cuts Won't Affect Medical Divisions

Veterans Administrator Carl Gray, in announcing that some 8,500 of the agency's 200,000 personnel would be released before July 1, stated that no reductions would be made in the medical divisions. He explained that the staff must be cut to stay within the $6,100,000,000 budget recommended for the fiscal year of 1949 by President Truman. Mr. Gray informed his assistants by letter that the reduction is planned "on the assumption that the Congress will not appropriate in excess of budget recommendations."

Medical Records of Veterans to Be Used in Study of Rare Diseases

Dr. Paul B. Magnuson, medical director, Veterans Administration, announced that medical records of more than 100,000 veterans will be used in research studies on the causes and cures of rare diseases. The project will be directed by Dr. Edward Harvey Cushing, research director of the agency, and will go beyond hospitalization to determine cause of relapses and other after-effects. All medical records will be guarded. Under way now is a program of research on heart disease at Mount Alto Hospital, and Dr. Winfred Overholser, superintendent, St. Elizabeths Hospital, is directing a study on psychoneuroses at George Washington University Medical School. There are thirty-five general research laboratories in operation now in class A medical schools, and the agency plans to have such laboratories in all fifty-four veterans' hospitals, Dr. Magnuson stated. Dr. Harvey J. Tompkins, who has been with the agency since 1935, has been appointed head of its neuropsychiatric service.

HEALTH APPRAISAL OF SCHOOL CHILDREN

A pamphlet outlining standards for determining the health status of school children is now being distributed by the Bureau of Health Education of the American Medical Association.

The brochure is entitled "Health Appraisal of School Children" and is a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Recommendations as to how the teacher and the nurse may aid the physician with nonmedical portions of the examination are made. Suggestions regarding periodic medical examinations, special examinations and health inspections are also given. The material was edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D., of the Bureau of Health Education Staff.

A complimentary copy will be sent to physicians, teachers and public health workers on request.

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Coming Medical Meetings

Alabama, Medical Association of the State of, Mobile, April 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for the Study of Goiter, Toronto, Can., King Edward Hotel, May 6-8. Dr. Thomas C. Davison, 478 Peachtree St.N.E., Atlanta, Ga., Secretary.

American Association of Anatomists, Madison, Wis., April 21-23 Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Boston, March 28-April 4. Dr. Frederick W. Slobe. 28 E. Jackson Blvd., Chicago 4, Secretary.

American Association of Plastic Surgeons, Boston, May 6-8. Dr. W. H. Steffensen, 1810 Wealthy St.S.E., Grand Rapids, Mich., Secretary.

American Broncho-Esophagological Association, Atlantic City, Chalfonte-Haddon Hall, April 7-8. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago 11, Secretary.

American College of Physician, San Francisco Civic Auditorium, April 19-23, Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secretary.

American Dermatological Association, Coronado, Calif., April 26-29. Dr. Harry R Foerster, 208 E. Wisconsin Ave., Milwaukee, Secretary.

American Federation for Clinical Research, Atlantic City May 4. Dr. John S. LaDue, 139 E. 36th St., New York 16, Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, April 30-May 1. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secretary.

American Laryngological Association, Hot Springs, Va., April 14-15. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological Rhinological and Otological Society, Atlantic City, April 7-9, Dr. C. Stewart Nash. 277 Alexander St., Rochester, N. Y., Secretary

American Orthopsychiatric Association, New York, Hotel Commodore, April 12-14, Nina Ridenour, Ph.D., 1790 Broadway, Rm. 916, New York 19, Secretary.

American Otological Society, Hot Springs, Va., April 12-13. Dr. Gordon D. Hoople, 7qe E. Genesee St., Syracuse 2 N. Y., Secretary.

American Physiological Society, Atlantic City, March Atlantic City, March 15-19. Dr. Maurice Visscher, University of Minnesota, Minneapolis 14, Secretary.

American Society for Clinical Investigation, Atlantic City, Haddon Hall May 3. Dr. Eugene A. Stead Jr., Duke Hospital, Durham, N C., Secretary.

American Society for Experimental Pathology, Atlantic City, March 15. Dr. Frieda S. Robscheit-Robbins, 260 Criddenden Blvd., Rochester 7, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 14-19 Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

Arkansas Medical Society, Little Rock, Robinson Auditorium, April 15-17. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

American Society for Research in Psychosomatic Problems, Atlantic City, May 1-2- Dr. Eugene Ferris, 714 Madison Ave., New York 21, Secretary.

American Society of Biological Chemists, Atlantic City, March 14-19. Dr. Otto A. Bessey, Public Health Research Institute, New York 19, Secretary.

American Student Health Association, Detroit, Hotel Statler, May 7-8. Dr. George T. Blydenburgh, Ohio Weslayan University, Delaware, Ohio, Secretary.

Association of American Physicians, Atlantic City, May 4-5. Dr. Henry M. Thomas Jr., 1201 N. Calvert St, Baltimore 2, Secretry.

California Medical Association, San Francisco, April 11-14. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8. Secretary.

Connecticut State Medical Society, Fairfield, April 27-29. Dr Creighton Barker, 258 Church Street, New Haven, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, Hotel Adolphus, March 15-18. Dr. Gle n D. Carlson, 1133 Medical Arts Bldg., Dallas, Secretary.

Federation of American Societies for Experimental Biology, Atlantic City, March 15-19. Dr. William H. Chambers. Medical Division, Army Chemical Center, Maryland, Secretary.

Florida Medical Association, St. Augustine, Ponce de Leon Hotel, April 11-14. Dr. Robert B. McIver, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, April 27-30. Dr. Edgar D. Shanks, 478 Peachtree St. N.E. Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 6-9. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu 53, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Louisiana State Medical Soceety, Monroe, April 12-14. Dr P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 27-28. Dr. George H. Yeager, 1211 Cathedral St., Baltimore, Secretary.

Missouri State Medical Association, St. Louis, Hotel Jefferson, March 14-17. Mr. T. H. O'Brien, 634 N. Grand Blvd., St. Louis 3. Exec. Secretary.

Nebraska State Medical Association, Lincoln, Hotel Cornhusker, May 3-6. Dr. R. B. Adams, 416 Federa Securities Bldg., Lincoln 8, Secretary.

New England Dermatological Society, Boston, April 14 Dr. G. Marshall Crawford, 1180 Beacon St., Brookline, Secretary.

New Jersey, Medical Society of Atlantic City, Haddon Hall, April 26-29. Dr. Earl LeRoy Wood, 315 W. State St., Trenton, Secretary.

North Carolina, Medical Society of the State of. Pinehurst, May 3-5. Dr. Roscoe D. McMillan, P.O.Box 232, Red Springs, Secretary.

Northern Tri-State Medical Association, Findlay, Ohio, April 13, Dr. Don F. Cameron, 247 W. Berry St., Ft. Wayne, Ind., Secretary.

Ohio State Medical Association, Cincinnati, Netherland Plaza Hotel, March 30-April 1. Mr. C. S. Nelson, 79 E. State St., Columbus 15, Secretary,

Southeastern Surgical Congress Hollywood, Fla., Hollywood Beach Hotel, April 5-8. Dr. Benjamin T. Beasley, 45 Edgewood Avenue S. E., Atlanta 3, Ga., Secretary

Southwest Allergy Forum, Oklahoma City, April 5-6. Dr. Fannie Lou Leney, 1200 N. Walker St., Oklahoma City, Secretary.

Tennessee State Medical Association, Nashville, April 13-14 Dr. W M. Hardy, 706 Church St. Nashville 3. Secretary.

Texas, State Medical Association of, Houston, Rice Hotel, April 26-29. Dr. Harold M. Williams, 1404 W. El Paso St. Fort Worth, Secretary.

United States-Mexico Border Public Health Association, Laredo, Texas and Nueva Laredo, Mexico, March 20-22. Dr. M. F. Haralson U.S. Court House El Paso, Texas, Secretary.

Western Section American Urological Association Victoria, B. C. Empress Hotel April 19-21. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles, Secretary.

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Medical Legislation

STATE LEGISLATION

Arizona

Bill Introduced.—S.33-xxxx proposes to abolish various state examining boards including the board of examiners in the basic sciences, chiropody, chiropractic, dentistry, medical practitioners, naturopathic practitioners, nurses and osteopaths, and to vest the functions and duties of such boards in the secretary of state. The secretary of state, according to the proposal, would be authorized to establish a division of business and professional pursuits to perform the duties previously performed by the abolished boards.

Kentucky

Bills Introduced.—S. 161 proposes to provide means for providing medical scholarships at the University of Kentucky and other eligible institutions.
Kentucky and other eligible institutions. H. 302 proposes the creation of a division of medical and surgical hospitals and related services in the department of health and authorizes such division to be the state agency to accept funds from the federal government in carrying out the provisions of its hospital construction act.

Bills Passed.—S. 162 passed the senate February 25. It proposes to prohibit the handling, sale and distribution of barbiturates except on the written prescription of a practitioner licensed to prescribe and administer barbiturates, with certain stated requirements relating to pharmacists and wholesale dealers in the drug. S. 197 passed the senate February 25. It proposes the creation of a division of medical and surgical hospitals and related services in the department of health and authorizes such division to be the state agency to accept funds from the federal government in carrying out the provisions of its hospital construction act.

Mississippi

Bills Introduced.—H. 533, to amend the hospital construction act, proposes authorization for operating and equipping health centers or health departments in the various municipalities of the state. S. 358 proposes an appropriation to the Mississippi commission on hospital care for the purpose of contributing to the building, erecting and equipping of a teaching hospital in the school of medicine of the University of Mississippi.

Bill Passed.—H. 423 passed the house February 25. It proposes the creation of a four year medical school as a department of the University of Mississippi, which shall be operated as a class A medical school in accordance with the Council on Medical Education and Hospitals of the American Medical Association.

New Jersey

Bill Introduced.—A. 255 proposes the creation of a board of examiners in medical technology, which is defined to be the science, art or technic of performing any laboratory test or examination on or of the blood, blood serum, feces, urine, sputum, exudates, transudates, organ contents or any byproducts thereof, from the human body, living or deceased; when the test or tests shall be used either directly or indirectly as an aid in the care or treatment of diseases, abnormal or injured organs of the human body

New York

Bill Introduced.—A. 2348, to amend the public health law, proposes the creation in the department of public health of a commission to be known as the New York state health commission. Some of the proposed duties which would devolve on this commission are: (1) to formulate and execute a comprehensive, statewide plan designed to protect and improve the health of the people of the state; (2) to erect and maintain health centers providing additional hospital and outpatient facilities where needed; (3) to establish state scholarships on a competitive basis in medical schools, and (4) to provide basic financial assistance, not to exceed $2,000 per annum for a three year period, to qualified physicians who will agree to enter into private practice in rural areas, designated by the commission, lacking a sufficient number of qualified physicians to provide adequate health protection. A. 2368, to amend the education law, proposes to define x-ray diagnosis and to make the practice thereof the practice of medicine within the meaning of the medical practice act. A. 2416, to amend the public health law, proposes to make it the duty of every physician to give notice to the health officer of his respective county, city, town or village of every case of cerebral palsy under his care. S. 2467, to amend the education law, proposes that after July 1, 1949 medical students performing clinical clerkships or similar functions in a legally incorporated hospital shall be exempt from the provisions of the medical practice act.

Virginia

Bills Introduced.—H. 119 and S. 102, to amend the law relating to chiropractors and naturopaths, propose that any such person who received a temporary license to practice until Dec. 31, 1949 may be granted a license to practice by passing the examination required of chiropractors and naturopaths without taking the examination given by the special board of examiners in basic science. H. 439 proposes to require every practicing medical doctor to obtain a revenue license. S. 192 proposes to authorize the use in any criminal prosecution relating to drunken driving of the results of chemical analyses of the defendant's blood, urine, breath or other bodily substance. S. 199 proposes that children born as the result of artificial insemination shall be considered the same as legitimate children for all purposes, if the husband of the mother consented to the operation. S. 221, to amend the law relating to naturopaths, proposes that any person now licensed to practice naturopathy until Dec. 31, 1949 who is now practicing and has been practicing naturopathy in the state for at least five years shall be given a full license to practice without further examination and without any limitation as to time or period.

Bills Passed.—H. 354 passed the house February 27. It proposes to make it unlawful for any physician, dentist or optometrist to practice his profession as a lessee of any commercial or mercantile establishment or to advertise, either in person or through any commercial or mercantile establishment, that he is a duly registered practitioner and is practicing or will practice medicine, dentistry or optometry as a lessee of any such commercial or mercantile establishment. S. 105 passed the senate February 16. To amend the medical practice act, it proposes, among other things, to exempt therefrom interns and residents in legally established and licensed hospitals provided their practice is confined strictly to persons who are bona fide patients within the hospital or who receive treatment and advice in an organized outpatient department of the hospital to which ambulant patients regularly come for professional services rendered under supervision of licensed members of the hospital staff. Such interns and residents, however, must have completed successfully the preliminary academic education required for admission to examinationsgiven by the board in their particular field of practice or hold a valid license issued in a state maintaining standards acceptable for reciprocity with the state of Virginia. No graduate of a substandard medical school may be so employed except under particular cases. S. 106 passed the senate February 16. To amend the medical practice act, it proposes to authorize the state board of medical examiners to suspend or revoke the certificate of a physician who has been the legally responsible head of a hospital the license of which has been revoked because of illegal practice or conduct or practices detrimental to the welfare of a patient therein by the state board of health. S. 107 passed the senate February 16. It proposes to require the annual renewal of certificates to practice medicine, homeopathy, osteopathy, chiropractic, naturopathy or chiropody on or before June 30 of each year.

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ARMY

PREVENTIVE MEDICINE SPECIALTY BOARD

An Interim Board of Preventive Medicine under the joint auspices of the Surgeon General of the Army, Navy and Public Health Service has been established. According to the announcement, the board was formed to set up certification requirements for medical officers seeking to qualify as specialists in the field. Final approval and nationwide acceptance of the board's requirements will result in the elevation of preventive medicine to a specialty status. The members of the board are: Ernest L. Stebbins, director, Johns Hopkins University School of Hygiene and Public Health, chairman; Wilton L. Halverson, California State Director of Public Health; Harry S. Mustard, New York City Health Commissioner; Thomas Francis Jr., University of Michigan School of Public Health; Gaylord W. Anderson, director, University of Minnesota School of Public Health; Hugo Muench, assistant dean, Harvard School of Public Health; James Crabtree, deputy surgeon general, U. S. Public Health Service; Col. Tom F. Whayne, chief, Army's Preventive Medicine Division, and Capt. Otto L. Burton, chief, Preventive Medicine Division of the Navy.

COURSE IN PHYSICAL RECONDITIONING

The Surgeon General has announced a new eight weeks' course of instruction in physical reconditioning to be conducted at the Brooke Army Medical Center, Fort Sam Houston, Texas, beginning April 26, 1948. The purpose of this course is to qualify officers to activate, organize and administer programs of physical reconditioning. Officers qualifying for the course will report on April 20 or 21. The course may be attended by regular Army officers, organized reserve or national guard officers, or officers of the Army Medical Department who will have a minimum of one year to serve in the Army after completion of the course. Such officers must be below the grade of lieutenant colonel and must have had at least two years' experience in physical education or have completed a two year college course in which they majored in physical education. Under certain conditions, officers may attend this course prior to entering on a competitive tour for regular Army commissions in the medical service corps. First, they must be qualified for entrance on a competitive tour under provisions of medical circulars 101 or 210, 1947, and second, they should have had experience in the fields of physical reconditioning or corrective physical rehabilitation or be a graduate of an approved course in physical education. Applications must reach the Surgeon General not later than March 20.

ARMY AWARDS AND COMMENDATIONS

Colonel Herrman L. Blumgart

Col. Herrman L. Blumgart of Boston has been awarded the Legion of Merit. The citation reads as follows: "Colonel Blumgart performed exceptionally meritorious service from May 1943 to December 1944. As Medical Consultant, Second Service Command, he used his high professional attainments and administrative ability to promote the highest quality of diagnosis and care of patients in all medical installations within the Command. His constant appraisal of the ability and training of medical officers resulted in the use of these officers to the fullest degree and facilitated the personnel organization in opening new installations. During certain emergencies that arose within the Command, Colonel Blumgart personally supervised the care and treatment of the patients involved and was instrumental in the saving of many lives." A second citation reads as follows: "Colonel Herrman L. Blumgart performed exceptionally meritorious service as Medical Consultant in the India-Burma and China theaters, from January to October 1945. His keen judgment in the evaluation of the professional capabilities of the medical officers under his jurisdiction, as well as his profound knowledge of the medical problems of both theaters, enabled him to carry out measures that revitalized the medical service. The notable accomplishments achieved in these theaters are due in a large part to the professional ability, loyalty and untiring devotion to duty of Colonel Blumgart." Dr. Blumgart graduated from Harvard Medical School in 1921 and entered military service in February, 1943.

Captain Robert G. Demos

Capt. Robert G. Demos, M. C., formerly of Nashville, Tenn., has been awarded the Army Commendation Ribbon. The citation reads as follows: "Captain Demos, while serving as chief, Obstetrical and Gynecological Section, Surgical Service, Oliver General Hospital, distinguished himself by meritorious performances in prenatal, obstetrical and postnatal care from January to October 1947, a period without a single maternal death. During this period, 3 premature babies weighing less than 3 pounds (1,361 Gm.) at birth were skilfully studied, nursed, fed and raised to normal development. The survival of one 30 ounce (850 Gm.), five and one half months prenatal infant, the smallest ever born in a U. S. Army Hospital to survive, is a single instance of his accurate professional planning. This accomplishment was the direct result of continuous professional study and application of modern methods, constant devotion to duty and above all, an untiring energy to respond immediately to the call of any patient." Dr. Demos graduated from the University of Tennessee Medical School Memphis, in 1944 and entered military service in April, 1946. He will leave the service in March to engage in practice in Chattanooga, Tenn.

LIBRARY ACQUIRES THE "GREAT HERBAL"

The Army Medical Library, Washington, D. C., has acquired a nineteenth century edition of Li Shihchen's Chinese "Great Herbal" (Pen Ts'ao Kang Mu) in fifty-two volumes. The original of this work was published in 1596 shortly after the death of its compiler, who is said to have labored on it for almost thirty years. Although commonly translated as "The Herbal," it is actually a complete materia medica. Three of its supplementary volumes consist entirely of fine wodocuts illustrating the animals, plants and minerals which form the basic substances of all drugs described in the work itself. This work represents a critical study of 1,578 prescriptions contained in earlier works, to which the author added three hundred and fifty-eight new drugs.

PERSONALS

Col. John M. Caldwell, M. C., chief of neuropsychiatry, Consultants Division, Surgeon General's Office, has been appointed clinical professor of psychiatry and Lieut. Col. Stephen C. Sitter, M. C., assistant chief of neuropsychiatry, Consultants Division, associate professor of psychiatry at Georgetown University, Washington, D. C.

Dr. William S. Middleton, dean, University of Wisconsin Medical School, Madison, has returned to active duty as a colonel of the medical corps for a period of five weeks to act as a medical personnel consultant in the Surgeon General's Office. Colonel Middleton during the war was chief medical consultant to the chief surgeon in the European theater of operations.

Miss Elsa Schneider has been appointed assistant specialist in health and physical education on the staff of the U. S. Office of Education, Federal Security Agency, Washington, D. C. Miss Schneider was formerly with the State Department of Public Instruction in Illinois and was assistant state director of health, physical education and safety for four years.

Dr. Theodore R. Meyer, Sag Harbor, N. Y., has been appointed chief of the medical research and training section of the public health branch, Office of Military Government in Germany. Dr. Meyer was formerly director of the Van Buren County health department in Michigan and of the St. Louis county department in Missouri previous to entering the medical service of the Navy in the recent war.

VETERANS ADMINISTRATION

HOSPITAL AT LITTLE ROCK

The veterans' hospital at North Little Rock, Ark., has been designated as a plastic surgery center, a neurosurgery center and a neuropsychiatric tuberculosis cented. It is located on the bank of Arkansas River several hundred feet above the business district and less than 2 miles from the city. The hospital is so organized that it functions as a small community with itself, closely affiliated with the larger communities in surrounding cities and states. Members of the staff have become thoroughly interwoven into the medical structure of surrounding professional societies, they participate in the affairs of the medical school, and civilian medical authorities participate in professional activities in the hospital. Consultants have been selected among the leading practicing physicians and from the staff of the local medical schools. A residency training program has been developed and at present eight residents and six staff members are actively participating. According to the neuropsychiatry division of the Veterans Administration, this hospital has more than 1,400 chronically psychotic veterans, 70 per cent of whom are of rural origin and the treatment of whom is determined by their environmental background as well as their physical and mental capacities. The hospital reservation comprises about 1,100 acres. The 260 acre farm owned and operated by the hospital produces an average of $3,700 worth of vegetables a year, a large amount of corn and wheat, and hogs which provide fresh pork throughout the year. Also entering into the care of patients are recreational and occupational facilities including shops of various kinds, athletic fields, a nine hole golf course, libraries and recreation halls. There are fifteen ward buildings and seventy-six other structures. The hospital has a bed capacity of 2,400.

RECLAMATION AND REPAIR OF MEDICAL EQUIPMENT

Nearly $2,800,000 of medical equipment consisting of x-ray machines, electrocardiograph equipment, anesthesia apparatus and the like has been repaired by Veterans Administration service and reclamation shops. The total cost of putting this equipment into usable shape has been estimated to be about 7.14 per cent of the value of the equipment. Costs of repair include salaries of repairmen, parts, electric power and lights and all other expenses that could be attributed to the repair service. In addition to repairs shop employees install new medical equipment in Veterans Administration hospitals, homes and regional offices at a saving of time and money. Repair work is carried on at supply depots in Somerville, N. J., Hines, Ill., Montgomery, Ala., and Wilmington, Calif., by a staff of repairmen who have between ten and twenty-five years' experience working with technical medical equipment.

RESEARCH PROJECTS

The Veterans Administration has thirty-five general research laboratories in operation in hospitals affiliated with class A medical schools. The Veterans Administration hopes that such laboratories will be established in all fifty-four veterans' hospitals which operate in conjunction with medical schools and in some of the nonaffiliated hospitals. In addition, six laboratories for radioisotope research and therapy will be established this year and three more next year. A cardiovascular research unit is in operation at the Mount Alto Hospital in Washington, D. C. Twenty hospitals are engaged in a broad investigation of the value of streptomycin therapy for tuberculosis. Two centers for exhaustive study of patients with sarcoidosis will be established. Other projects to get under way this year will be a study of vagotomy in the treatment of peptic ulcer and an evaluation of the usefulness of providing albumin treatment in hepatic diseases. Contracts for research on artificial limbs have been awarded to various universities, private industries and the National Academy of Sciences.

PERSONALS

Dr. Thomas J. Ready has been assigned as chief medical officer and Dr. Frank D. Thomas as chief of the outpatient medical service for the Pass-a-Grille regional area in Florida. Dr. Ready is a graduate of Georgetown University School of Medicine, Washington, D. C., and served in the Army Medical Corps during the recent war. Dr. Thomas is a graduate of Hahnemann Medical College, Philadelphia, and is a veteran of World War I.

Dr. Clarence R. Miller has been assigned as manager of the Veterans Administration Hospital at Jackson, Miss., to succeed Dr. J. Ralston Wells, who will be in charge of the Veterans Hospital at Dallas, Texas. Dr. Miller is a veteran of World War I, formerly served in the U. S. Public Health Service, and for many years has been in the Veterans Administration.

Dr. Robert A. Houston, Sunbury, Pa., has been appointed chief of medical services of the veterans' hospital at Lebanon, Pa., effective February 1.

E. Burns Geiger, formerly of Hagerstown, Md., has been appointed chief of the Pharmacy Division of the Veterans Administration Department of Medicine and Surgery. Mr. Geiger served in the Navy during the war and later became assistant to the chief of the Division of Pharmacy.

Dr. George S. Peters has resigned as chief of the Surgical Service at the veterans' hospital, Montgomery, Ala., and will enter private practice in that city.

Dr. David E. Quinn, formerly manager of the veterans' hospital at Oteen, N. C., has assumed his new duties as medical director of the Northwest Branch of the Veterans Administration with headquarters at Seattle.

Dr. Horace B. Cupp, for a long time on the staff of the Johnson City, Tenn. veterans' hospital, has been named assistant medical director for the Southeastern Branch of the Veterans Administration, which supervises fifteen hospitals and six regional offices in the five Southeastern states. Dr. Cupp served in the Army in the recent war in command of the 63d Station Hospital in Australia and later as commanding officer of a hospital ship.

Dr. James Van D. Nelson, who has been with the Veterans Administration since 1920 and whose recent assignment was at the hospital in Bay Pines, Fla., retired from government service in December.

Dr. Edward E. Johnston has resigned as manager of the Nichols Hospital at Louisville and will enter private practice at Elizabethtown, Ky. Dr. Leverett S. Woodworth has been appointed assistant to the clinical director at the Nichols Hospital. Dr. Woodworth was formerly superintendent of the Massachusetts Memorial Hospital, Boston.

Dr. Howell Brewer, manager of the rehabilitation hospital at Fort Thomas, has been transferred to the veterans' branch office at St. Louis. Dr. Brewer will direct the physical medicine program in the ten hospitals under supervision of the regional branch office.

HOSPITAL NEWS

The opening date for bids on construction of a five hundred and sixty-four bed addition to the neuropsychiatric hospital at **Lebanon, Pa., was extended, at the request of contractors, to February 10.**

The Chief of Army Engineers announced that the February schedule of the closing dates for general construction bids on veterans' hospitals includes the following six general hospitals: Albany, N. Y., 1,000 beds; Little Rock, Ark., 500 beds; Wilkes-Barre, Pa., 475 beds; Wilmington, Del., 300 beds; Altoona, Pa., and Beckley, West Virginia, 200 beds each. The February schedule also includes invitations to contractors to submit bids for general construction contracts on a 1,000 bed hospital at Newark, N. J., and a 200 bed hospital at Erie, Pa.

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Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Gengenbach Library.—A special library is being established in honor of Dr. Franklin P. Gengenbach, at the University of Colorado Medical Center, Denver, by the Rocky Mountain Pediatric Society. A gift of $250 to start the library was made by the society and other donors interested in pediatrics, and a special fund will be given each year to add new volumes. Dr. Gengenbach, one of the first pediatricians west of the Mississippi, has been practicing in Denver for forty-seven years.

Establish Premature Infant Center.—A Premature Infant Center has just been inaugurated at the University of Colorado Medical Center, Denver. Sponsored by the state department of public health, the state university and the Colorado State Medical Society, the program has been set up to provide facilities for the training of physicians, nurses and other personnel for the prevention and treatment of infant prematurity. The activities of the center are made possible by a grant from the U. S. Children's Bureau. Fifty of every thousand Colorado-born infants die in the first year of life, as compared with the national average of thirty-eight deaths per thousand live births. The medical supervision of the Premature Infant Center is the joint responsibility of the departments of pediatrics and of obstetrics and gynecology at the University of Colorado Medical Center. Premature babies born within a radius of 30 miles of the center may have the services of a special ambulance for transportation. Infants outside this area will be accepted if safe transportation can be arranged. The division of maternal and child health of the state department of health has made available several incubators for loan to facilitate premature infant care in other hospitals.

CONNECTICUT

Personal.—Leonell C. Strong, Ph.D., associate professor of anatomy at Yale, will go to Europe early this spring to lecture on cancer research in Belgian universities. Dr. and Mrs. Strong will be guests of the National Cancer Foundation in Belgium. He will also visit laboratories in Belgium and other nearby countries. Dr. Strong has been asked to lecture in Stockholm, Sweden; Copenhagen, Denmark; Amsterdam, Netherlands, and England. The professor and his wife also expect to attend the eighth International Congress of Genetics in Stockholm during July.

New Veteran's Placement Committee.—A Medical Advisory Committee of five physicians has been named by the Connecticut State Medical Society to aid in the occupational placement of disabled war veterans. Believed to be the first committee of its kind in the country, the group will furnish consultation on employment-medical problems to the veterans' employment division of the United States Employment Service, and to the Connecticut State Employment Service. Members of the committee are Drs. S. Bliss B. Clark, chairman, New Britain; Charles I. Solomon, Meriden; Arthur C. Unsworth, Hartford; Robert W. Nespor, Westport, and Russell V. Fuldner, New Haven.

Institute of Child Psychiatry.—Construction of a five story building to house an Institute of Child Psychiatry has been started on the campus of the Institute of Living in Hartford. The directors of the institute, one of the country's oldest hospitals for the treatment of mental and nervous diseases, have planned the project as the result of fifteen years of psychiatric treatment of adolescent and preadolescent children. Plans include a Parentorium, an original concept to furnish guidance for the parents of emotionally disturbed children. The project, it is estimated, will cost in excess of $150,000, of which more than $100,000 has been subscribed. A large part of this sum has come from members of the institute's own personnel. The new Institute of Child Psychiatry will contain classrooms, a gymnasium, shops, treatment rooms and other facilities. The ultimate capacity of the institute will be 66 children.

ILLINOIS

Fight Against Venereal Disease.—The Cook County Health Department has set up a program to eliminate venereal disease. Over 700 cases of syphilis were reported in suburban Cook County in 1947, the same number as in 1946, and a decrease from 652 to 526 was reported in gonorrhea cases. Five venereal disease clinics are operated by the health department and give about six hundred treatments monthly.

Chicago

Quine Library of Medical Sciences.—The Quine Library of Medical Sciences at the Chicago Professional Colleges of the University of Illinois has a total of 84,910 volumes and is now receiving 923 current journals. The present rate of growth is over 4,000 volumes annually. A special effort has been made to fill in files of foreign periodicals for the war years. With the exception of German journals, nearly complete sets of most of the foreign titles which continued publication during the war have been received. In addition about 300 volumes of French, German and Italian medical works have come in through the Library of Congress cooperative project for the acquisition of wartime publications.

University Orders Magnet for Cyclotron.—The University of Chicago's new giant cyclotron is to have a 4,140,000 pound magnet, to be delivered in July. The magnet will accelerate protons to a speed of some 160,000 miles a second. The institutes of radiobiology and biophysics will use the beam on the cyclotron, among other things, for studies on cancer research. A building to house the cyclotron is under construction.

Grants for Research.—The University of Illinois College of Medicine has received a nutrition fellowship grant of $3,500 from Swift and Company, Chicago, for a year's study of amino acids in the blood in disease. The project will be conducted by the department of surgery under the supervision of Dr. Tilden C. Everson. A grant of $7,920 from the Upjohn Company of Kalamazoo, Mich., will be used to evaluate the use of the pancreatic enzyme lipase A in the treatment of patients who have the symptoms of diarrhea due to pancreatic deficiency. The study will be conducted by the department of medicine under the direction of Dr. Michael H. Streicher. A research grant of $2,700 from Hoffmann-LaRoche, Inc., of Nutley, N. J., will be used for the study of a new sulfone product in the treatment of chronic ulcerative colitis. A grant of $1,500 from Ciba Pharmaceutical Products, Summit, N. J., will be used for the study of skin-sensitizing properties of a nicotinic acid derivitive, under the direction of Dr. Adolph Rostenberg, Jr.

LOUISIANA

Smith-Clark Eye Clinic.—The Smith-Clark Eye Clinic in New Orleans, opened January 2, is said to be the second clinic in the United States to be built and devoted exclusively to treatment of disease of the eye. No beds are provided for inpatients.

Dr. Jones Appointed Editor.—Dr. Philip H. Jones, New Orleans, has been appointed editor of the *New Orleans Medical and Surgical Journal* published by the Louisiana State Medical Society to succeed Dr. John H. Musser, who died Sept. 5, 1947. Dr. Jones obtained his medical degree from Tulane University of Louisiana School of Medicine, New Orleans, in 1920, being the third generation of his family to receive an M.D. from Tulane. As a Rhodes Scholar he obtained his Ph.D. degree in pathology in 1924. He returned to New Orleans in 1925. He had served on the faculty at Tulane until he entered private practice in 1929, and in 1945 he was president of the Orleans Parish Medical Society.

MASSACHUSETTS

Hospital Granted Funds for Cancer Research.—The American Cancer Society has granted the Massachusetts General Hospital $100,000 for cancer research in addition to the $50,000 recently given to the hospital for similar research by the Damon Runyon Fund.

Director, of Division of Venereal Diseases.—Dr. Nicholas J. Fiumara, Boston, has received a permanent appointment as director of the division of venereal diseases of the Massachusetts Department of Public Health. Dr. Fiumara, a former navy medical officer, is a graduate of the Boston University School of Medicine, 1939, and the Harvard School of Public Health. He has been temporary director of the division of venereal diseases since April 1947.

Cutter Lecture on Preventive Medicine.—Dr. William N. Pickles, medical officer of health, Aysgarth Rural District, Yorkshire, England, will deliver the Cutter Lecture on Preventive Medicine April 12 at 5 p. m. in Amphitheatre D of Harvard Medical School, Boston. His subject will be "Epidemiology in Country Practice." The lectures have been held since 1912. Physicians, students of medicine and public health and other interested persons are cordially invited.

MICHIGAN

Cancer Day Program.—The Genesee County Medical Society announces its third Annual Cancer Day Program, March 31, at Flint, in the Merliss Brown Auditorium at Hurley Hospital beginning at 10 a.m. The following program will be given:

Charles F. Branch, Chicago, Cancer of the Osseous System.
Richard H. Overholt, Brookline, Mass., Cancer of the Lung.
Allen O. Whipple, New York, General Principles of Cancer Management.
Alexander Brunschwig, New York, Extensive Surgical Procedures for Cancer.
Manuel M. Garcia, New Orleans, Role of Radiotherapy in Management of Cancer.

MISSOURI

Past Presidents' Banquet.—The annual banquet honoring past presidents of the St. Louis Medical Society will be held March 15 in the Gold Room of the Jefferson Hotel, St. Louis. Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association, will speak on "Medicine's New Frontiers." Physicians, wives of physicians, and friends are invited.

NEW YORK

Scholarships in Sight Conservation.—Delta Gamma, national social sorority, has a $1,000 annual fund, from which smaller scholarship awards are available for preparation of those intending to become (1) orthoptic technicians, (2) teachers of children with partial vision or (3) specialists for blind preschool children. Any one wishing to specialize in these fields may be eligible for assistance. Application for a scholarship should be made to Mrs. Richard P. Miller, 39 West Jefferson Road, Pittsford, N. Y.

Pediatricians Meeting in Buffalo.—An area meeting of the American Academy of Pediatrics, will be held at the Hotel Statler, Buffalo, April 29 to May 2. The program includes papers on the following subjects: metabolic disturbances, the cardiovascular system, management of the child with chronic disease and the central nervous system. May 2 has been designated Clinical Day, when demonstration of cases will be made at Children's Hospital and Edward J. Meyer Memorial Hospital. The registration fee is $10. Those wishing to register ahead of time may send checks to Dr. Clifford G. Grulee, secretary-treasurer, American Academy of Pediatrics, 636 Church Street, Evanston, Ill.

New York City

Center for Emotionally Disturbed Children.—A center for the treatment of emotionally disturbed children will open at Adelphi College, Garden City, N. Y., this month on a fee schedule. The center has been approved by the Nassau County Medical Society, the Nassau County Board of Health and the medical advisory board of the college. The objectives are treatment of a limited number of emotionally maladjusted children referred by the schools and social agencies; research in the psychiatric treatment of maladjusted children; training of graduate students majoring in psychology, social work and education, and provision of clinical experience for a select group of physicians and graduate nurses interested in psychiatric treatment of children. The medical director will be Dr. John C. Thurrott, a practicing psychiatrist in New York City.

Lecture on Application of Science in Medicine.—David Rittenberg, Ph.D., associate professor of biochemistry at the Columbia University College of Physicians and Surgeons, will deliver the second lecture in the series on the application of fundamental sciences in medicine at the Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn, Wednesday, March 31, at 8:45 p.m. His subject will be "The Application of Nuclear Chemistry in Medicine."

Fellowships on Pathology of Tumors.—Through the W. T. Grant Foundation, fellowships on the pathology of tumors are available in the laboratories of Memorial Hospital for the Treatment of Cancer and Allied Diseases. Requirements are that a candidate shall hold appointment as assistant professor or instructor in a university department of pathology and that he shall be given a one year leave of absence with a guarantee that he may return to academic status after completion of the fellowship. These fellowships are designed for training of personnel of universities which have received government grants for establishment of correlated work in the teaching of cancerology. Students will have access to about 18,000 specimens per year and will attend conferences and follow-up clinics. Research may be undertaken as a minor portion of the program provided it forms a part of one of the research programs being conducted in the institution. The annual stipend of $5,000 may be supplemented by the university in any individual case. Application should be made to Dr. Fred W. Stewart, Memorial Hospital, 444 East Sixty-Eighth Street, New York 21.

Dr. Boggs Appointed Acting Dean.—The appointment of Dr. Robert Boggs, assistant dean of New York University College of Medicine, as acting dean of the New York Post-Graduate Medical School was announced March 1. Dr. Boggs received his M.D. degree from McGill University Faculty of Medicine, Montreal, Canada, 1933. During the war he was medical officer of the U.S.S. *Wichita* in the Pacific area and was also stationed at Columbia University and at St. Albans Naval Hospital. The Post-Graduate Medical School, incorporated in 1882, has a current annual registration of about one thousand, one hundred physicians and specialists. The Post-Graduate Hospital, located at 303 East 20th Street, has four hundred beds and is currently providing medical services in about one hundred thousand outpatient visits annually.

PENNSYLVANIA

Rheumatic Heart Clinic for Lawrence County.—The State Rheumatic Heart Clinic for Lawrence County, with Dr. John O. Woods, New Castle, medical director, was inaugurated January 28. All patients who have rheumatic fever are to be registered through their personal physicians, after which they may be given appointments for complete examinations with special reference to rheumatic heart disease. Diagnostic and consultation services are offered to patients under 21 years of age who have rheumatic heart disease. Information concerning a patient will be made available to his personal physician, who must request treatment before it will be given.

Philadelphia

Personal.—Alfred Z. Gilman, Ph.D., associate professor of pharmacology, Columbia University College of Physicians and Surgeons, delivered the annual Bernard Comroe Memorial Lecture February 6 at the University of Pennsylvania School of Medicine.

A Plaque for Dachshund Bozo.—The dachshund which has helped medical students at Jefferson Medical College of Philadelphia to learn the use of the bronchscope was recently honored with a plaque from the Dachshund Club of America. For four years Bozo has served medical students who wanted to familiarize themselves with the bronchoscopic method of removing buttons, pins, stones and other items from the throats of babies. Bozo's work is painless. He has a host of friends and can take real satisfaction in knowing that he has helped to save the lives of hundreds of children.

Naval Reserve Officers.—Civilian medical personnel interested in being associated with a U. S. Navy medical reserve division may obtain information through the Office of the Commandant, Fourth Naval District, Philadelphia. Capt. John G. Manley, U.S.N.R., has been assigned executive officer of the Volunteer Reserve Medical Division 4-3, Philadelphia; in addition, the following reserve medical officers on inactive duty have been assigned to this division: Comdrs. James E. Bowman, Martin P. Crane and Charles M. Thompson; Lieut. Comdr. Robert F. Sterner; Lieut. Carroll F. Burgoon, and Lieut. (jg) Karl C. Jonas.

TEXAS

Cancer Detection Clinic.—The Tarrant County Tumor Clinic for the detection and treatment of cancer has been established in Fort Worth with Dr. W. Porter Brown, director, and Dr. Helen Gottschalk, executive director. The clinic is open to the public every Tuesday morning; on any other day a patient may be seen by appointment.

Baylor Hospital Fund Oversubscribed.—The $1,000,000 Truett Memorial Fund, to which Dallas citizens contributed to help pay for a $4,000,000 expansion of Baylor Hospital, has been oversubscribed by about $50,000. The sum will be added to the $1,000,000 raised in 1943, the $1,000,000 contributed by the Baptist General Convention, in which Dr. Truett was a leader, and the $1,000,000 to be borrowed. The money is to be used to build a seven story, eight hundred bed hospital on the present grounds of Baylor Hospital in Dallas.

WISCONSIN

Nicholas Senn Memorial Hospital.—Use of his $300,000 estate for building a general hospital in Milwaukee to be known as the Nicholas Senn Hospital in memory of his father was requested in the will of Dr. Emanuel J. Senn, aged 78, who died Dec. 14, 1947. Dr. Nicholas Senn practiced in Milwaukee for many years before going to Chicago. He was former professor of surgery at Rush Medical College and chief of staff at

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Presbyterian Hospital. The estate is to remain in trust, as provided by the will, for the benefit of Dr. Senn's widow for her lifetime.

Drs. Lincicome and Rasmussen Jr. Appointed to Faculty.—David R. Lincicome, Ph.D., assistant professor of parasitology at the University of Kentucky, Lexington, has been appointed assistant professor of parasitology in the department of microbiology at the University of Wisconsin Medical School, Madison. Dr. Lincicome received his master's degree from the University of Illinois in 1937 and his doctor of philosophy degree in parasitology from Tulane University of Louisiana, New Orleans, in 1941. Dr. A. Frederick Rasmussen Jr., formerly associated with the Army Medical Corps and Graduate Medical School at Walter Reed Hospital in Washington, D. C., has been appointed associate professor of microbiology and preventive medicine. He obtained his Ph.D. degree from the University of Wisconsin in 1941 and his M.D. degree in 1944. Following an internship, Dr. Rasmussen was a member of the Army Medical Corps. For the past two years he has been working chiefly in the fields of rickettsial bodies and viruses.

VIRGINIA

Spring Graduate Course in Ophthalmology.—The twenty-first annual Spring Graduate Course of the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, will be given April 5-10. Among the guest speakers in ophthalmology will be Professor Adalbert Fuchs, UNRRA-World Health Organization, Nanking - Shanghai, China; Drs. Conrad Berens, New York; Albert D. Ruedermann, Detroit; Edwin B. Dunphy, Boston; Trygve Gunderson, Boston; John M. McLean, New York, and Alston Callahan, Birmingham, Ala.

PUERTO RICO

Municipal Hospital Improvement Program.—A vast municipal hospital improvement program is under way in Puerto Rico with an appropriation of $793,000 voted by the insular legislature last year. A special construction agency has already completed construction of five new hospitals with a capacity of from sixteen to twenty beds each and is now nearing completion of new units for six other municipalities. New equipment will be purchased for all these units. In the city of San Juan, with an additional special appropriation amounting to $75,000, the following projects for the improvement of hospital facilities are being carried out: (1) addition to the Surgery Hospital in San Juan and (2) construction of a two story building for the Pathology Department. This building will consist of an autopsy room, a morgue and facilities for pathologic services. For the first time in the history of medical services in Puerto Rico forensic medical services will be provided in the municipal hospital of San Juan, when these improvements will be completed. The organization of this service is being carried on by the government of the city of San Juan and the insular office of the attorney general.

GENERAL

Meeting on Physical Medicine.—The spring session of the eastern section of the American Congress of Physical Medicine will meet at 2 p.m., Saturday, April 10, at Jefferson Medical College of Philadelphia. The program includes a symposium on the effect of physical inactivity and of exercise in the afternoon, and a roundtable discussion on low back pain and the sciatic syndrome in the evening at the Benjamin Franklin Hotel.

American National Red Cross Drive in March—The American National Red Cross will conduct its annual campaign this month to raise $75,000,000. During the past year, disasters totaled about three hundred and more than 300,000 persons were aided in emergencies that followed in their wake. In addition, there are 18,000,000 war veterans, a substantial segment of whom seek and require the services and assistance of the Red Cross, both on the chapter level and in government hospitals.

Examination of Orthoptic Technicians.—The annual examination of orthoptic technicians by the American Orthoptic Council will be conducted in September and October. The written examination will be nonassembled and will take place September 9 in certain assigned cities and offices under the proctorship of designated ophthalmologists. The oral and practical examinations will be October 9 in Chicago, just preceding the meeting of the American Academy of Ophthalmology and Otolaryngology. Application for examination will be received by the office of the secretary of the American Orthoptic Council, Dr. Frank D. Costenbader, 1605 Twenty-Second Street N.W., Washington 8, D.C., and must be accompanied by the examination fee of $25.

National Negro Health Week.—Health plans for the individual and the family will be emphasized during National Negro Health Week, April 4-11, sponsored annually by the Public Health Service of the Federal Security Agency. Participating communities will urge each Negro family to clean home and premises, check health habits, seek proper medical aid and obtain necessary corrective treatment. Negro children will receive physical check-ups at school and will learn the fundamentals of good health through health plays and contests. Special tribute will be paid to the founder of the Health Week movement, Booker T. Washington, whose April 5 birthday determines the time of the observance. More than 12,500 communities in thirty-six states and territories took part in the 1947 Health Week. The All-America trophy for the best Health Week and year-round program was awarded to Savannah-Chatham County, Georgia.

Board of Orthopaedic Surgery.—At its annual meeting in Chicago January 24, the American Board of Orthopaedic Surgery passed a resolution to increase the examination fee for Part II of the examination of the board from $35 to $50. This increase is now in effect, and candidates applying for Part II to be given in January 1949 are notified of this change. There is no change in the fee of $15 which is submitted with the application. The deadline for receipt of applications for Part II of the examination has been established as August 15. Correspondence and applications should be directed to the secretary of the board, Dr. Francis M. McKeever, 1136 West Sixth Street, Los Angeles 14. Checks should be made out to the American Board of Orthopaedic Surgery, Inc. Applications for Part I of the examination, to be given in the spring of 1949, must be received by the secretary not later than Jan. 1, 1949. There is no change in fees in connection with Part I of the examination.

Aid to Neurosurgeons in Europe.—At a meeting of the Academy of Neurological Surgery, a neurosurgeons' fund was initiated to send food and clothing to neurosurgeons in Europe. An appeal has been made to all neurologic surgeons in the United States and Canada, according to Dr. Joseph P. Evans, University of Cincinnati, secretary-treasurer of the fund. Dr. Evans recently returned after serving in Austria on a medical mission sponsored by the Unitarian Service Committee and the United Nations World Health Organization; others on the committee are: Dr. Howard C. Naffziger, San Francisco, chairman of the 1946 Unitarian Service Committee mission to Poland; Dr. Leo M. Davidoff, Brooklyn, member of the committee's 1946 mission to Czechoslovakia; Dr. A. Earl Walker, Baltimore; Dr. Franc D. Ingraham and Dr. W. Jason Mixter, Boston; Dr. Percival D. Bailey, Chicago, and Dr. Wilder G. Penfield, Canada.

Amputee Institute.—The second annual Amputee Institute will be held April 1, 8, 15, 22 and 29 at the Hasbrouck Heights Hospital in New Jersey. The institute will endeavor to correlate the efforts of the general surgeon, the orthopedic surgeon, the limb manufacturer and associated interests and promote for civilian amputees the same help as that provided by the Army and Navy for members of the armed forces who lost limbs in World War II. The institute will be under the personal direction of Dr. Henry H. Kessler, Newark, N. J., chairman of the Rehabilitation Committee of the American Medical Association Council on Industrial Health. In connection with the institute an intensive course in amputation and selection of prosthesis will be given for physicians and associated workers from 9 a.m. to 12 noon and from 2 to 5 p.m. Sponsors of the institute are reported to be the Hasbrouck Heights Hospital Association, the National Council of Rehabilitation, the New Jersey State Elks Crippled Children's Committee, Orthopedic Appliance and Limb Manufacturers Association, the New Jersey Crippled Children's Commission and the Federal Security Agency's Office of Vocational Rehabilitation. The registration fee is $10. Those planning to attend should notify the registrar, Hasbrouck Heights Hospital.

Joint Crystallographic Meeting.—The American Society for X-Ray and Electron Diffraction and the Crystallographic Society of America will hold their first joint meeting at Yale University, New Haven, Conn., April 1-3. Detailed notices have been sent to members of the two societies. Nonmembers

who desire information may obtain it from Elizabeth A. Wood, secretary, American Society for X-Ray and Electron Diffraction, Bell Telephone Laboratories, Murray Hill, N. J., or William Parrish, secretary, Crystallographic Society of America, Phillips Laboratories, Inc., Irvington-on-Hudson, N. Y.

Broncho-Esophagological Association.—The twenty-ninth annual meeting of the American Broncho-Esophagological Association will be held in Atlantic City, N. J., at Chalfonte-Haddon Hall April 7-8. A resume of the program follows:

Louis H. Clerf, Philadelphia, Bronchial Adenomas.
Joseph P. Atkins, Philadelphia, Fibrocystic Disease of the Pancreas and Its Relation to Pulmonary Suppuration.
Clyde Heatly, Rochester, N. Y., Bronchoscopic Examinations in the Newborn.
Paul H. Holinger, Chicago, Tracheal and Bronchial Obstruction Due to Cardiovascular Anomalies.
Charles M. Norris, Philadelphia, Bronchospirography.
F. Johnson Putney, Philadelphia, Hiatus Hernia of the Esophagus.
Archibald R. Judd, Hamburg, Pa., Syphilitic Tumor of the Bronchus.
Chevalier L. Jackson, Philadelphia, The Present Status of Broncho-Esophagology in Latin America.
William P. Longmire, Jr., Baltimore, Reconstruction Surgery of the Trachea.
John J. O'Keefe, Philadelphia, Streptomycin Therapy in Tracheal and Bronchial Tuberculosis.
Ricardo Tapia, Mexico, D.F., Mexico, Rhinoscleroma of the Bronchus.
Francis W. Davison, Danville, Pa., Allergic Manifestations of Pulmonary Disease.
Stanton A. Friedberg, Chicago, Hemiptysis Due to Chronic Mediastinal Venous Obstruction.
Frederick T. Hill, Waterville, Maine, Granuloma of the Larynx Due to Intratracheal Anesthesia.

American Institute of Biological Sciences.—An American Institute of Boilogcal Sciences was formally established February 20 to help the various biologic societies to discharge more effectively those functions which are common concern to them all, but which they cannot adequately exercise as individual societies. As a part of the National Research Council the Institute will also provide biologists with an agency through which they can maintain close relations with governmental activities and other fields of science represented within the National Research Council. The governing board elected the following officers: chairman, Ralph E. Cleland, Ph.D., Indiana University, Bloomington-Indianapolis; vice chairman, Elmer G. Butler, Ph.D., Princeton University, Princeton, N. J.; members for three years, Wallace O. Fenn, Ph.D., Rochester, N. Y.; member for two years, Theodore C. Byerly, Ph.D., Bureau of Animal Husbandry, U. S. Department of Agriculture, Washington, D. C., and member for one year, Frank P. Cullinan, Ph.D., Bureau of Plant Industry, U. S. Department of Agriculture, Beltsville, Md. Twelve societies and the National Research Council named directors to the governing board, and twelve other societies that consider joining the Institute appointed observers.

Fellowships in Child Guidance Clinic Psychiatry.—The American Association of Psychiatric Clinics for Children is offering fellowships for training in child guidance clinic psychiatry under the auspices of the U. S. Public Health Service, the Commonwealth Fund and some local funds. The training is for positions in community clinics where psychiatrists, psychologists, social workers and others collaborate in the treatment of children with emotional or mental illness. Most of the fellowships are for two years, some for one. The stipend is $3,000 for the first year, more for the second. Prerequisites are graduation from an approved medical school, a general internship and two years of general psychiatry. Opportunity is provided for the fellow to develop his own skills in an outpatient service with the support of a carefully planned training program and adequate supervision. The training centers are selected on the basis of standards which have been established by the association, and the fellowships are awarded by a committee of this organization. For information write Dr. Abraham Z. Barhash, executive assistant, the American Association of Psychiatric Clinics for Children, 1790 Broadway, New York 19.

International Congress on Mental Health.—Grants totaling $50,000 to support the contribution of the United States to the first International Congress on Mental Health to be held in London next August were announced February 11 by Dr. Frank Fremont-Smith, chairman of the Executive Committee of the International Committee for Mental Hygiene, 1790 Broadway, sponsor of the congress. "Mental Health and World Citizenship" will be dealt with at the congress, which will be attended by an estimated two thousand psychiatrists, social workers and others from forty-four countries, including five hundred persons from the United States. According to Dr. Fremont-Smith, it is planned to form a World Federation for Mental Health as a result of the congress. Two central commissions have been set up in New York, one under the chairmanship of Lyman Bryson, LL.D., New York, to collate material on the general theme, the other under the chairmanship of Dr. David M. Levy, to report on the effect of war on children. To carry out the work of the congress additional funds are required, it was pointed out by Dr. Fremont-Smith, and plans are under way to raise an additional $200,000. Donors are the Commonwealth Fund, 41 East Fifty-Seventh Street, $20,000; the Milbank Memorial Fund, 40 Wall Street, $10,000, and the United States Public Health Service, Washington, D. C., $20,000. Previous donations totaling $35,000 have already been announced from Imperial Chemical Industries, Ltd., Unilever, Ltd. (Lever Bros.) London, and the Josiah Macy Jr. Foundation of New York City.

United Nations Crime Prevention Study.—Dr. Manfred S. Guttmacher, Baltimore, has been appointed consultant-psychiatrist to the World Health Organization Interim Commission. He will take part in a special study of the prevention of crime and the treatment of offenders undertaken by the social commission of the United Nations Economic and Social Council. The purpose of the study is to provide a plan for international action. Dr. Guttmacher's work will relate to: heredity as a factor in the causation of crime; prevention of crime; medical and psychiatric factors in the genesis of early criminal careers; medical and psychiatric methods for the treatment of juvenile and adolescent offenders, and medical and psychiatric care for the treatment of adults in confinement. During the war Dr. Guttmacher served as a lieutenant colonel in the Surgeon General's office and was awarded the Legion of Merit for his psychiatric work. He is psychiatric consultant to the Second Army and consulting psychiatrist to the Veterans Administration.

Heroin Seized in New York.—The *New York Times* reports the seizure of $150,000 worth of heroin (diacetylmorphine) smuggled from Turkey and the arrest on February 7 of two seamen for its possession. The 73,416 grains (4,757 Gm.) of the drug were carried in a cigar box. The men, who were about to board a train to Philadelphia when arrested, said they had obtained the diacetylmorphine on the Istanbul waterfront in exchange for American goods scarce in Turkey. The men, according to Col. Garland H. Williams, supervisor of the United States Bureau of Narcotics, district 2, had made frequent trips to Philadelphia since their arrival trying to sell the drug at high prices.

Dr. Cori Awarded Gibbs Medal.—Dr. Carl F. Cori, professor of biochemistry, Washington University School of Medicine, St. Louis, a 1947 Nobel Prize winner, has been designated the winner of the Willard Gibbs Medal of the Chicago section of the American Chemical Society. Dr. Cori's achievements in research on processes by which the human body converts sugar into energy won the award.

Personal.—Dr. John Rock, Brookline, Mass., and Dr. Richard N. Pierson, New York, in recognition of their service toward healthier marriage and parenthood were given the Albert and Mary Lasker Foundation Awards for 1948 at the recent annual dinner of the Planned Parenthood Federation of America in New York.

FOREIGN

Service Committee Opens Polish Hospital.—The Kosciuszko Hospital was formally opendd in Piekary Slaskie, Poland, February 22 in the presence of the of the officials of the Polish government and the United States Embassy. The hospital is the project of the Unitarian Service Committee and the Polish National Social Insurance Institution. It stands on a filled-in zinc mine in the Silesiain mining valley and is to serve the medical needs of this territory, particularly those of the miners. Traumatic surgery will be the specialized field of the hospital's activity. The Unitarian Service Committee has undertaken to supply American personnel to work with the Polish staff and to teach newest American technics. Much of the equipment has already been installed. More than 100 persons are now hospitalized, and eventually the hospital will have a capacity of three hundred to three hundred and fifty beds.

CORRECTION

Carbon Monoxide Poisoning.--In the abstract under this title in THE JOURNAL, Dec. 27, page 1182, line 14 of the second column should read: 'oxygen with 5 per cent carbon dioxide' not carbon monoxide.

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Deaths

James Vance May ✠ Belmont, Mass.; born in Lawrence, Kan., on July 6, 1873; University of Pennsylvania Department of Medicine, Philadelphia, 1897; an Affiliate Fellow of the American Medical Association; specialist certified by the American Board of Psychiatry and Neurology; lecturer on mental hygiene at the Harvard University School of Public Health from 1933 to 1936; member and past president of the New England Society of Psychiatry, Massachusetts Psychiatric Society and the American Psychiatric Association; fellow of the American Association for the Advancement of Science and the American Academy of Arts and Sciences; member of the International Committee for Mental Hygiene and the National Committee for Mental Hygiene; corresponding member of the Royal Medico-Psychological Association of Great Britain and, foreign associate member of the Société Médico-Psychologique, Paris; served during the Spanish-American War and World War I; at one time assistant physician of the Binghamton (N. Y.) State Hospital, superintendent of the Matteawan State Hospital, Fishkill-on-Hudson, N. Y., Grafton (Mass.) State Hospital and the Boston State Hospital; author of "Mental Diseases"; died in the Faulkner Hospital, Boston, Dec. 24, 1947 aged 74

Harry Brooker Mills, Philadelpma; born April 23, 1869; Medico-Chirurgical College of Philadelphia, 1897; emeritus professor of pediatrics at the Temple University School of Medicine; formerly assistant professor of pediatrics at his alma mater; member of the American Medical Association; served as president of the staff and chairman of the medical board of Temple University Hospital; consulting pediatrist at St. Agnes' Hospital; affiliated with the Skin and Cancer Hospital, the Philadelphia Convalescent Home for Children, at Langhorne, and the Ocean City Seashore Home for Babies; member of the consulting staff of the Eastern State Penitentiary and of the courtesy staffs of the Jewsh, Germantown and Doctors' hospitals; the H Brooker Mills Pediatric Society, a Temple University organization, was founded in his honor; died in Ridley Park Dec. 30, 1947, aged 78.

Frank Chaffee Neff ✠ Kansas City, Mo.; born in Winchester, Ind., in 1872; University Medical College of Kansas City, 1897; in 1924 joined the faculty of the University of Kansas School of Medicine in Kansas City, Kan., where he retired as professor and head of the department of pediatrics in 1945; an Affiliate Fellow of the American Medical Association, serving as secretary of the Section on Diseases of Children, 1912-1913, and chairman, 1920-1921 specialist certified by the American Board of Pediatrics, Inc.; member of the American Pediatric Society and the American Academy of Pediatrics; past president of the Central States Pediatric Society; affiliated with the Children's Mercy and Kansas City General hospitals; died in the University of Kansas Hospital, Kansas City, Kan., Dec. 3, 1947, aged 75.

Nathan Osher Ratnoff ✠ New York; born in 1875; Baltimore University School of Medicine, 1899; president of the American Jewish Physicians' Committee, which he organized in 1921 to build and maintain a medical school and university hospital as a part of the Hebrew University in Palestine, where he was a governor; this work resulted in the establishment of the Nathan Ratnoff Medical School of the Hebrew University; for many years a trustee of the Foundation of Jewish Maternity Hospital, where he served as attending obstetrician, medical director and secretary to the board of directors; consultant director and from 1930 until his retirement in 1945 medical director of Beth Israel Hospital; died Dec. 23, 1947, aged 72, of coronary sclerosis.

Noel Catching Womack ✠ Jackson, Miss.; born 1879; Jefferson Medical College of Philadelphia, 1905; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; fellow of the American College of Physicians; one of the organizers and first president of the Mississippi State Pediatric Society; consulting pediatrician to the Mississippi State Tuberculosis Sanatorium and the Mississippi State Charity Hospital; chief of the pediatric department of the Jackson Infirmary; died Dec. 26, 1947, aged 68, of coronary sclerosis.

Frank Peabody Atkinson ✠ Columbus, Ohio; Ohio Medical University, Columbus, 1903; served during the Spanish-American War and World War I; died in the Grant Hospital Dec. 26, 1947, aged 70.

Benjamin Spafford Barnes ✠ Shenandoah, Iowa; Rush Medical College, Chicago, 1909; past president of the Page County Medical Society; served during World War I; affiliated with the Hand Memorial Hospital, where he died Dec. 13, 1947, aged 63, of coronary occlusion.

Paul Hogue Beard, Indianapolis; Northwestern University Medical School, Chicago, 1927; member of the American Medical Association; fellow of the American College of Surgeons; served during World War II; affiliated with Methodist and St. Vincent's hospitals; died Dec. 22, 1947, aged 45.

Edward Bollinger, Columbia, Ill.; Illinois Medical College, Chicago, 1900; member of the American Medical Association; formerly affiliated with the state hospitals in Kankakee, Anna and Alton; died in the Christian Welfare Hospital in East St. Louis, Dec. 15, 1947, aged 71, of cerebral hemorrhage.

John Edson Bowers, Brandywine, Md.; George Washington University School of Medicine, Washington, D. C., 1908; died in the Providence Hospital, Washington, D. C., Dec. 16, 1947, aged 69.

Harry Edward Braner ✠ Hamburg, N. Y.; University of Buffalo School of Medicine, 1905; examining physician for the draft board during World Wars I and II; affiliated with the Millard Fillmore Hospital in Buffalo and Our Lady of Victory Hospital in Lackawanna; died Dec. 2, 1947, aged 64, of coronary disease.

John Joseph Brennan ✠ Scranton, Pa.; Medico-Chirurgical College of Philadelphia, 1898; past president of the Lakawanna County Medical Society; superintendent of the Westside Hospital, where he died Dec. 8, 1947, aged 73.

Luke D. Broughton, Brooklyn; Eclectic Medical College of the City of New York, 1881; New York Homeopathic Medical College, 1882; died Dec. 5, 1947, aged 88, of senility.

Thomas Earl Burgess, Toledo, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; formerly member of the city health department; died in Mercy Hospital Dec. 15, 1947, aged 81, of myocardial failure.

John Robert Burns, Penns Grove, N. J.; Bennett Medical College, Chicago, 1913; physician for du Pont de Nemours & Company; died Dec. 1, 1947, aged 59, of carcinoma of the esophagus.

Elizabeth M. Cahill, Chicago; Chicago College of Medicine and Surgery, 1909; died in December 1947, aged 72.

Paul Wiles Carmichael, Trinidad, Colo.; University of Colorado School of Medicine, Denver, 1915; member of the American Medical Association; affiliated with the Mount San Rafael Hospital; died in the Corwin Hospital, Pueblo, Dec. 21, 1947, aged 59, of carcinoma.

Willis H. Carr, Cynthiana, Ky.; Medical College of Ohio, Cincinnati, 1887; died Dec. 18, 1947, aged 84, of coronary occlusion.

John Blayney Claypool, Niles, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1893; died in a hospital at Youngstown Dec. 5, 1947, aged 78, of intestinal obstruction.

Emmanuel Robert Clemons, Chicago; Meharry Medical College, Nashville, Tenn., 1916; affiliated with Provident Hospital; died Dec. 5, 1947, aged 56, of coronary thrombosis.

George Vincent Coleman, Providence, R. I.; Harvard Medical Schol, Boston, 1919; member of the American Medical Association; chief surgeon for the Providence police and fire Departments; affiliated with St. Joseph Hospital and Providence Lying-In hospitals; died Dec. 10, 1947, aged 56, of pneumonia and myocarditis.

Frederic Charles Conway ✠ Albany, N. Y.; Albany Medical College, 1906; associate professor of medicine at his alma mater; fellow of the American College of Physicians; member of the board of education and of the examining board of the state retirement system; member of the House of Delegates of the American Medical Association in 1939 and 1940; affiliated with St. Peter's Hospital; died Dec. 6, 1947, aged 65, of coronary thrombosis.

Elmer Humphrey Copeland, Northampton, Mass.; New York Homeopathic Medical College and Hospital, New York, 1893; member of the American Medical Association; affiliated with the Cooley Dickinson Hospital; vice president of the Nonotuck Savings Bank; died Dec. 25, 1947, aged 80, of heart disease.

Chester Owen Cramer ✠ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1932; served during World War II; member of the city board of health; affiliated with Mount Carmel Hospital; died Dec. 11, 1947, aged 43, of coronary thrombosis.

Ralph Cline Cross ✙ Texarkana, Texas; University of Tennessee College of Medicine, Memphis, 1925; formerly secretary of the Bowie County Medical Society; served during World War I and on the Selective Service Board during World War II; died in the Michael Meagher Memorial Hospital, Texarkana, Ark., Dec. 15, 1947, aged 47, of heart disease.

Charles Leverett Curtis ✙ Salem, Mass.; Medical School of Maine, Portland, 1909; fellow of the American College of Surgeons; member of the New England Surgical Society; affiliated with the Danvers (Mass.) State Hospital, Cable Hospital, Ipswich, North Shore Babies Hospital and the Salem Hospital, where he died Dec. 11, 1947, aged 62.

Charles Payson Deyoe, Pasadena, Calif.; University of Maryland School of Medicine, Baltimore, 1883; died Dec. 16, 1947, aged 87.

Hervey John Smith Dickson, Springfield, Ohio; Medical College of Ohio, Cincinnati, 1891; formerly health commissioner of Champaign County; died Nov. 17, 1947, aged 86.

Lucius Boardman Donkle ✙ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; served as assistant clinical professor of surgery at the Loyola University School of Medicine on the staff of St. Bernard's Hospital; died January 7, aged 70, of carcinoma of the esophagus.

Wilbert G. Drinkwater ✙ Gormania, W. Va.; Eclectic Medical Institute, Cincinnati, 1888; honorary life member of the West Virginia State Medical Association; died in the Uniontown (Pa.) Hospital Dec. 20, 1947, aged 87, of benign prostatic hypertrophy with uremia.

Gregory Joseph Egan ✙ La Crosse, Wis.; Rush Medical College, Chicago, 1901; on the staff of St. Francis Hospital; died Dec. 6, 1947, aged 70, of intestinal carcinoma and bronchopneumonia.

Albert Mortem Elton ✙ Newport, Ark.; University of Arkansas School of Medicine, Little Rock, 1906; fellow of the American College of Surgeons; past president of the Jackson County Medical Society; served during World War I; formerly affiliated with the U. S. Public Health Service; member of the board of trustees of the Arkansas State Teachers College at Conway; chairman of the board of directors of the First National Bank; died in a local hospital Dec. 17, 1947, aged 65.

Edward Harris Fischer ✙ Louisville, Ky.; University of Louisville School of Medicine, 1917; served during World War I; died in St. Joseph Infirmary Dec. 19, 1947, aged 53.

Herbert Maurice Flemming ✙ Ambridge, Pa.; University of Pittsburgh School of Medicine, 1927; affiliated with the Beaver Valley General Hospital in New Brighton and the Rochester (Pa.) General Hospital; died Dec. 2, 1947, aged 47, of injuries received when his automobile was struck by a truck near Aliquippa.

T. H. Fowler, Nobility, Texas (licensed in Texas under the Act of 1907; died Nov. 30, 1947, aged 73, of chronic myocarditis.

Arthur Sheldon Grant ✙ New Britain, Conn.; University and Bellevue Hospital Medical College, New York, 1908; fellow of the Radiological Society of North America; served during World War I; for many years affiliated with the New Britain General Hospital; died Dec. 11, 1947, aged 67, of acute coronary occlusion.

Arthur Moses Greenwood ✙ Boston; Harvard Medical School, Boston, 1902; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association, American Academy of Dermatology and Syphilology and the New England Dermatological Society; served on the staffs of the Massachusetts General, New England Deaconess and Palmer Memorial hospitals; died in Laconia, N. H., Dec. 14, 1947, aged 71, of cerebral hemorrhage.

Nettie Hammond, Hermosa Beach, Calif.; University of Southern California College of Medicine, Los Angeles, 1896; died Dec. 1, 1947, aged 78.

Hal White Hardin, Dallas, Texas; Baylor University College of Medicine, Dallas, 1939; member of the American Medical Association; served during World War II; on the staffs of the Baylor, Children's and Veterans Administration hospitals; died Dec. 29, 1947, aged 32, of carcinoma of the colon and liver.

Timothy Louis Harrington, Milwaukee; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the American Medical Association; formerly medical director of the River Pines Sanatorium in Stevens Point, Wis.; for many years a member of the staff of the Wisconsin Anti-Tuberculosis Association; died Dec. 13, 1947, aged 81, of coronary heart disease.

Abel Le Compte Hill, Kings Mountain, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1930; member of the American Medical Association; a captain in the medical corps, Army of the United States, with the 82d airborne division during World War II; died suddenly Dec. 19, 1947, aged 40.

Myrtle Mary Ozias Hill, Kansas City, Mo.; Barnes Medical College, St. Louis, 1909; for many years on the staff of St. Joseph Hospital, where she died Dec. 19, 1947, aged 61, of uremia secondary to carcinoma.

George Franklin Holitik, Waldron, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1923; died Dec. 15, 1947, aged 48.

Joseph P. Holt Sr., Versailles, Ky.; Louisville (Ky.) Medical College, 1904; affiliated with Woodford Memorial Hospital; died Dec. 19, 1947, aged 64, of coronary occlusion.

Samuel Rice Hopkins, Dearborn, Mich.; Rush Medical College, Chicago, 1900; fellow of the American College of Surgeons; formerly professor of surgical pathology at Creighton University School of Medicine in Omaha; an officer during World War I; medical advisor for the Detroit Regional Office of the Disabled American Veterans and the American Legion; for many years affiliated with the Veterans Administration Hospital, where he died Dec. 19, 1947, aged 71, of cerebral hemorrhage and hypertension.

John Freeman Humphrey, Saratoga Springs, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1891; member of the American Medical Association; served as a member and president of the board of education; for many years affiliated with the Saratoga Hospital, where he died Dec. 5, 1947, aged 82.

Douglas Algot Jackson, Kansas City, Mo.; University of Louisville (Ky.) School of Medicine, 1934; member of the American Medical Association; an officer in the medical corps, Army of the United States, during World War II; affiliated with the Research, St. Joseph and Trinity Lutheran hospitals; died Dec. 7, 1947, aged 39, of heart disease.

Rilus Eastman Jones, Los Angeles; Medical College of Indiana, Indianapolis, 1901; died Dec. 8, 1947, aged 69.

Edward Payson Judd, Cleveland; Western Reserve University Medical Department, Cleveland, 1931; affiliated with the Lakeside Hospital, where he died Dec. 31, 1947, aged 42, of pneumonia.

Elizabeth Abbie Keay, Mars Hill, Maine; Woman's Medical College of Baltimore, 1910; died Dec. 14, 1947, aged 73.

Frank John Kiefer, Louisville, Ky.; Hospital College of Medicine, Louisville, 1898; member of the American Medical Association; died Dec. 16, 1947, aged 84.

George Clifford King ✙ Fall River, Mass.; Tufts College Medical School, Boston, 1909; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics and the New England Pediatric Society; formerly member of the board of health; affiliated with Truesdale Hospital; died Dec. 21, 1947, aged 61, of coronary thrombosis.

John Bartlett Kistler, Newcomerstown, Ohio; Eclectic Medical College, Cincinnati, 1924; member of the American Medical Association; formerly medical inspector in the division of communicable diseases of the state department of health; died Dec. 22, 1947, aged 51, of heart disease.

Jacob Kramer, Los Angeles; Long Island College Hospital, Brooklyn, 1907; died in December 1947, aged 62.

Frederick Milton Kueffer, San Carlos, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1905; died in December 1947, aged 71.

Stanley Joseph Lassaline, Detroit; Detroit College of Medicine and Surgery, 1915; member of the American Medical Association; died Dec. 5, 1947, aged 54, of coronary thrombosis.

William John Lord, Great Barrington, Mass.; Albany (N. Y.) Medical College, 1939; interned at St. Peter's Hospital in Albany, N. Y., and St. Joseph's Hospital in Toronto, Canada; served during World War II; diplomate of the National Board of Medical Examiners; died Dec. 16, 1947, aged 40, of a possible fracture of skull and gastric hemorrhage.

Forest Ray Mildren ✙ Las Vegas, Nev.; Chicago College of Medicine and Surgery, 1916; served in the medical corps of the U. S. Army in France during World War I; died Dec. 14, 1947, aged 57, of coronary thrombosis.

Frederick Christopher Miller, Prospect, Ky.; Lousville (Ky.) Medcal College, 1890; died Dec. 25, 1947, aged 79.

Hugo Miller, Kinmundy, Ill.; Beaumont Hospital Medical College, St. Louis, 1895; member of the American Medical Association; died in the Salem (Ill.) Memorial Hospital Dec. 14, 1947, aged 83, of pneumonia.

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Samuel Rush Miller ⊕ Knoxville, Tenn.; born in Bedford County, Tenn., July 7, 1869; Vanderbilt University School of Medicine, Nashville, 1893; member of the House of Delegates of the American Medical Association in 1911, 1912 and 1916; fellow of the American College of Surgeons; district surgeon for the Louisville and Nashville Railroad; surgeon for the Southern Railway; consulting surgeon for the Knoxville General Hospital; visting surgeon for St. Mary's Memorial Hospital and the Fort Sanders Hospital, where he died Dec. 24, 1947, aged 78, of Parkinson's disease.

Harry Fitzroy Mitchell ⊕ South Bend, Ind.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1889; affiliated with the Memorial Hospital, where he died Dec. 21, 1947, aged 81, of carcinoma of the prostate and pneumonia.

Edwin Jay Moffit, Los Angeles; Drake University Medical Department, Des Moines, 1896; member of the American Medical Association; affiliated with the Presbyterian Hospital, Olmstead Memorial, where he died Dec. 20, 1947, aged 75, of lymphatic leukemia and coronary occlusion.

Caldwell Morrison, South Orange, N. J.; New York Homeopathic Medical College and Hospital, New York, 1889; member of the Newark Induction Board during World Wars I and II; affiliated with the East Orange (N. J.) General Hospital; died in the Fair Oaks Sanatorium in Summit Dec. 24, 1947, aged 81, of coronary sclerosis.

Charles Henry Muschlitz ⊕ Slatington, Pa.; Jefferson Medical College of Phladelpha, 1904; fellow of the American College of Surgeons; member of the school board; director of the Slatington Citizens National Bank; affiliated with the Allentown (Pa.) Hospital; died Dec. 3, 1947, aged 66, of ruptured abdominal aneurysm.

Edwin Dunn Newman, Brooklyn; Long Island College Hospital, Brooklyn, 1896; died Dec. 20, 1947, aged 73, of cerebral hemorrhage.

John C. Nunn, Quincy, Ill.; Hospital College of Medicine, Louisville, 1896; died Dec. 24, 1947, aged 75, of a malignant tumor of the right parotid gland.

Howard Holland Nye ⊕ Paterson, N. J.; Jefferson Medical College, 1921; past president of the Passaic County Medical Society; affiliated with the Paterson General Hospital; died Dec. 28, 1947, aged 57, of coronary thrombosis.

Ewing Lamb Palmore, Glasgow, Ky.; Hospital College of Medicine, Louisville, 1905; member of the American Medical Association; past president of the Barren County Medical Society; affiliated with the T. J. Samson Community Hospital, where he died Dec. 25, 1947, aged 68, of cerebral hemorrhage.

Ralph Emory Peck, Cordelia, Calif.; Cooper Medical College, San Francisco, 1898; died Dec. 18, 1947, aged 76.

George Allen Perkins ⊕ Washington, Pa.; University of Cincinnati College of Medicine, 1916; past president of the Washington County Medical Society; affiliated with Washington Hospital; died Dec. 19, 1947, aged 62.

John Howard Rahter ⊕ Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; died in Harrisburg Hospital Dec. 17, 1947, aged 63, of coronary thrombosis.

Augustus Baxter Riley, Hartford, Ky.; Louisville Medical College, 1906; served during Word War I; died Dec. 19, 1947, aged 71, of heart disease.

Lambert William Rosenbaum, Chicago; Jenner Medical College, Chicago, 1913; member of the American Medical Association; died Dec. 29, 1947, aged 64, of carcinoma of the liver.

John Phillip Saling, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1899; member of the American Medical Association; affiliated with St. Joseph's Hospital; died Dec. 24, 1947, aged 73, of cerebral arteriosclerosis.

Thomas Nelson Sample, Fresno, Calif.; Cooper Medical College, San Francisco, 1901; member of the American Medical Association; died Dec. 23, 1947, aged 70, of uremia.

Carl Eric Sandberg, Chicago; Chicago College of Medicine and Surgery, 1908; served on the staff of the Englewood Hospital, where he died January 8, aged 78, of cerebral hemorrhage.

William David Sansum ⊕ Santa Barbara, Calif.; Rush Medical College, Chicago, 1915; formerly practiced in Chicago, where he was an associate in medicine at Rush Medical College; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the National Gastroenterological Association; affiliated with the Santa Barbara Cottage Hospital; died January 5, aged 67, of pontine hemorrhage.

Frank George Scammell, Trenton, N. J.; Medico-Chirurgical College of Philadelphia, 1899; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Medical Society of New Jersey and of the Mercer County Medical Society; surgeon to the Mercer Hospital; consulting surgeon, Orthopedic Hospital, Trenton, and the New Jersey State Hospital, Greystone Park, died Dec. 6, 1947, aged 70, of carcinoma of the prostate.

John Francis Schefcik, Los Angeles; Minneapolis College of Physicians and Surgeons, 1900; also a graduate in pharmacy; died Dec. 23, 1947, aged 75.

Philipp Schonwald ⊕ Seattle; Medizinische Fakultät der Universität, Wien, Austria, 1905; fellow of the American College of Chest Physicians and of the American College of Physicians; died Dec. 20, 1947, aged 67.

Elias Selinger ⊕ Chicago; Northwestern University Medical School, Chicago, 1924; professor of ophthalmology at the Cook County Graduate School; at one time on the faculty of Rush Medical College; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Michael Reese, Cook County and Mount Sinai hospitals; died in El Paso, Texas, Dec. 21, 1947, aged 49, of coronary occlusion.

Jesse Washington Shaw, St. Louis; St. Louis College of Physicians and Surgeons, 1908; found dead Dec. 2, 1947, aged 63, of ruptured left ventricle.

Edwin Heddon Shepard ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1905; served on the faculty of his alma mater; chief examiner for the Syracuse branch of the Travelers Insurance Company; past president of the Syracuse Academy of Medicine; formerly on the staff of the Crouse-Irving Hospital, where he died Dec. 26, 1947, aged 69, of acute myocardial infarction, coronary sclerosis and diabetes mellitus.

William Palmer Sherman, Aurora, Ill.; Rush Medical College, Chicago, 1889; fellow of the American College of Surgeons; affiliated with St. Joseph Mercy Hospital, where he died Dec. 10, 1947, aged 84, of hypostatic congestion of the lungs.

William Arthur Shields, Sacramento, N. Mex.; University of Texas School of Medicine, Galveston, 1902; died in the Municipal Hospital in Artesia recently, aged 69, of coronary occlusion.

John M. Shirley, St. Marys, Mo.; St. Louis College of Physicians and Surgeons, 1890; also a graduate in pharmacy; died Dec. 9, 1947, aged 89, of bronchopneumonia.

Robert William Siddle, Powell, Wyo.; Rush Medical College, Chicago, 1934; died recently, aged 45, of heart disease.

Ferdinand Francis Siegel, Brooklyn; Long Island College Hospital, Brooklyn, 1916; member of the American Medical Associaton; served during World War I; formerly supervising medical inspector for the board of health; died in the Bushwick Hospital Dec. 5, 1947, aged 56, of chronic nephritis and hypertension.

Cash L. Simmons, Long Beach, Calif.; Ensworth Medical College, St. Joseph, 1892; died Dec. 26, 1947, aged 81.

Richard M. Skinner, Flemingsburg, Ky.; Homeopathic Hospital College, Cleveland, 1886; died in Ironton, Ohio, Dec. 20, 1947, aged 85.

Archibald Smith, Atlanta, Ga.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; member of the American Medical Association; formerly on the faculty of the Atlanta School of Medicine; served during World War I; affiliated with the Grady and Crawford W. Long hosptals; died Dec. 20, 1947, aged 73, of cerebral hemorrhage.

Seth Paine Smith ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1905; formerly on the faculty of Barnes Medical College; member of the staff of the De Paul Hospital; died in December 1947, aged 65, of coronary sclerosis.

Frank Wallace Smith, York Village, Maine; Dartmouth Medical School, Hanover, N. H., 1883; died Dec. 11, 1947, aged 88.

Andrew Jackson Stufflebam, Humansville, Mo.; St. Louis College of Physicians and Surgeons, 1898; member of the American Medical Association; past president of the Dallas-Hickory-Polk Counties Medical Society; served as secretary of the city board of health; died recently, aged 75.

Henry Fletcher Tatum, Meridian, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; served on the staff of the East Mississippi State Hospital; died Dec. 11, 1947, aged 76.

Clinton Michael Young, Kittanning, Pa.; Baltimore Medical College, 1906; died Dec. 3, 1947, aged 68.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 8, 1948.

New Method for Relief of Pain in Intractable Pelvic Cancer

From the Postgraduate Medical School Dr. Maeve Kenny has described in the *British Medical Journal* a method of caudal anesthesia which she has found successful for the relief of pain in cancer of the pelvic organs intractable to surgery. The method has the great advantage that it can be carried out by the general practitioner. The subjects of pelvic cancer may die hard, often in the prime of life and capable of service and happiness if relief of pain can be given in their remaining years without impairing their mental and bodily functions. Opium in increasing doses, neurectomies and intrathecal injection of alcohol increase the nursing responsibilities and make the last days odious to the sufferer and friends.

Caudal anesthesia is produced as follows: After anesthetizing the caudal opening of the sacral canal and the tissues down to the tough fibrous membrane closing the sacral canal by the injection of procaine solution, a 3 inch (7.62 cm.) needle is pushed through the membrane for a distance of 1 inch (2.54 cm.). The needle is attached to a syringe containing the solution of procaine, which is injected boldly. The syringe in then replaced by a 10 cc. one charged with warmed "protocaine" (procaine with butyl aminobenzoate and benzyl alcohol in arachis oil). This is injected steadily to an amount varying with the skeletal size of the patient, usually 40 to 60 cc. in about ten minutes, meanwhile testing the levels of cutaneous anesthesia to pinprick of the perineum, thighs, buttocks and abdominal wall, and asking the patient when the pain is relieved. When this is known, or if the level of the anesthesia rises to the nipple level, the injection is discontinued.

Sometimes complete relief is obtained at once, but sometimes only when the patient is eased from the left side on which she has been lying onto the right side, is made to stand up, or to lie on the back with the foot of the bed raised. A dramatic case was that of an old dancer brought to the clinic in a wheel-chair with her thighs drawn up in painful spasm due to cancerous infiltration of the psoas muscles. After caudal anesthesia she straightened herself and smilingly assumed poses of the ballet, to the delight of the students. She died of cardiac metastases from cancer of the cervix. Seventeen patients with cancer of the uterus, prostate or vagina were treated. All obtained relief except those who had secondary neoplasms beyond the reach of the injections. No urinary or fecal incontinence followed use of this method, which is within the competence of the ordinary practitioner and which enables those with pelvic cancer to end their days in comparative comfort.

British Lecturers Abroad

Illustrations of the fact that one result of the war was the passage to England of the hegemony in European medicine which was claimed for Germany have been given in previous letters to THE JOURNAL. The latest manifestation is the despatch by the British Medical Association of lecturers to various European countries. A year age the council set aside the sum of $4,000 to provide lectures by distinguished practitioners to the medical profession in Europe, especially in countries occupied by the enemy during the war. Lectures on clinical pathology have been delivered in Czechoslovakia by Dr. S. C. Dyke; in Denmark on plastic surgery by Professor T. P. Kilner; in Norway on orthopedics by Mr. L. Lawson Dick, and in Spain and the Netherlands on chest surgery by Mr. C. Price Thomas. At the end of February Mr. N. R. Barrett is to visit Denmark to lecture on recent advances in chest surgery.

On returning from Norway Mr. Lawson Dick reported that medicine there bears marks of the long isolation which the country suffered. In particular the treatment of fractures shows much more of the influence of Böhler than is seen in Britain. Nearly all the doctors he met had been in concentration camps for varying periods.

ITALY

(From Our Regular Correspondent)

Jan. 15, 1948.

Italian Urologic Society

At the Twentieth National Congress of the Italian Urologic Society in Rome Professor M. Sorrentino, from the University in Naples presented a report on urinary incontinence. He discussed the various forms of incontinence: essential; that of nervous origin; regurgitation; enuresis of women. He described various methods of treatment with special consideration of the treatment that he recommends, which consists in irradiation of the bladder by short waves and the surgical treatment of enuresis in women.

Ascoli (Milan) called attention to the importance of the integration of psychic and psychopedagogic factors in the other methods of treatment of infantile enuresis. Bonino (Turin) after describing two signs, a cystoscopic and roentgenographic one, which he had observed, expressed his opinion that the method of choice may be surgical, consisting in the reconstruction of the neck of the bladder by the vaginal route in women and by the transvesical route in men.

Caporeale (Turin) discussed the surgical treatment of urinary incontinence by recalling Rochet's intervention (section of the hypogastric nerve) in cases refractory to medical and surgical treatment. The speaker made a therapeutic experiment by means of infiltration of the hypogastric ganglion with an anesthetic or alcohol in order to obtain an interruption of the peripheral nervous vesical system; on the base of the results obtained (2 cures, 3 therapeutic failures) he stated that this method should be given therapeutic trial in cases refractory to other methods of treatment.

Therapy of Cancer of the Prostate

Professor Musiani of Bologna presented a review of synthetic estrus-producing substances which may be employed for treatment of cancer of the prostate. He compared the results obtained with castration and those obtained with the administration of estrus-producing compounds. He concluded that the results obtained with the estrogenic treatment may be considered satisfactory, because in 51 per cent of the cases an immediate success was obtained with regard either to the tumor or to the metastases.

Professor Mingazzini reported on the diagnosis of cancer of the prostate. Based on his own statistics, those of others and studies of 1,700 patients, 188 of whom had cancer, he examined the incidence of cancer and the relation of cancer to hypertrophy; he insisted on the importance (1) of the data furnished by the objective examination and (2) particularly of the changes in the prostate (with regard to form, surface and consistency) and of pain. The roentgenologic, the cystoscopic and the ureteroscopic observations are likewise of great importance. With regard to surgery he discussed the limits of operability, the technic, methods of indirect surgical treatment (ligature of the vasa deferentia, castration, orchiectomy); radium and roentgen therapy, and surgical treatment combined with administration of stilbene.

Many others participated in the discussion of this subject. Bravetta of Milan treated 60 patients with cancer of the prostate with estrus-producing compounds for two and one-half years and obtained definite improvement in nearly all of them; he administered 5 mg. of the compound daily by the hypodermic route and continued this treatment for an indefinite time.

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Berti Riboli of Genoa obtained encouraging results in 50 patients treated in several hospitals. Bonino of Turin obtained favorable results when castration was combined with the administration of estrus-producing compounds. Bruni of Naples obtained more favorable results in 20 patients with castration than with hormone therapy. Oberholtzer of Rome discussed the mechanism of action of the treatment of cancer of the prostate with stilbene; he concluded that at present it does not seem possible to confirm whether the drug acts as a hormone or as a chemical agent.

Establishment of a Blood Bank

The first Italian Blood and Plasma Bank has been organized in Turin following the scheme of those established in the United States. The bank will not be a substitute for the present Association of Voluntary Blood Donors but will partly support this association with the intention to perfect the blood transfusions and to make them more practical. The bank will put the products at the disposal of the physicians as follows: (*a*) whole blood, collected in a special citrated, anticoagulant solution; (*b*) human plasma, frozen or dried, and (*c*) modified globin, obtained from erythrocytes which have not been utilized during the preparation of plasma.

The classification of the blood will be warranted by the determination of the various blood groups and of the Rh factor.

Consulting Office on Genetics

The first Italian Consulting Office on Genetics has been established at the center for studies of human genetics of the University of Milan. The purpose of the consulting office is to assist physicians in evaluating data of the family history of patients with diagnostic, prognostic and therapeutic problems which sometimes can be solved only with the help of genetics. The consulting office will also give advice with regard to marriage. Counselors will be the director of the center for studies of human genetics at the university and specialists in the various branches of medicine as assistant physicians. The function of the consulting office will be purely consultative, with the exclusion of any diagnostic or therapeutic activity.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 22, 1947.

The New Law for Argentine Universities

The government has proclaimed a new law for the universities, effective Jan. 1, 1948. For several months it had been projected and several times discussed in parliament and the daily press. According to the definition given, the universities are institutions for advanced teaching, the development of young students, the advancement of science and the development of the liberal professions. Their technical, teaching and scientific autonomy is guaranteed. Neither professors nor students are allowed to act directly or indirectly in politics or to intervene in situations which are foreign to their specific function.

An important change, in comparison with former rules, is that the rector of the university will not be designated by the government (executive power); he remains three years in charge. There is also a vice rector and a university council composed of the deans and vice deans of the different faculties. The rector must possess the highest title of the corresponding national faculty or be a titular professor or associate professor. His post is incompatible with any other public activity, except teaching in the same university, lecturing, research work and similar occupations. He receives 4,000 pesos per month. The vice rector substitutes for the rector if necessary or can be delegated by him for certain functions. He receives 500 pesos a month.

The university council has many functions; for instance, superior jurisdiction, control of the faculties and rules, creation of new faculties or institutes and the approval of candidates for a chair.

The faculties are led by a directing council composed of the dean and ten councilors elected by secret vote of the professors among themselves, viz. seven titular councilors (six plus the dean) and four associates. Another important change is that the dean of the faculty is not elected by the professors of the faculty (and the students) among themselves, but from a list of three names which the rector presents to the directing council of the faculty. He must be professor of the same faculty. He remains in charge for three years, and so do the ten councilors, who cannot be reelected for the following three year period. The councilors cannot occupy paid positions which are independent of the university. They cannot be designated during their mandate and for two years after their mandate has ended, for chairs, etc., created during their mandate. The dean receives 1,000 pesos a month for expenses of representation.

The professors are classified as titulars (those who occupy a chair), associates, extraordinary and honorary professors. The titular and associate professors are selected by competitive test between several candidates; with respect to the titulars, a list of three names is submitted by the university to the executive who makes the designation. The associate professors must be approved by the university council. Also, persons who have not taught before can be elected if their scientific personality and work are approved; in such cases also the competitive test can be set aside under certain conditions. After four years of activity, associate professors must be confirmed as such by the university council. Every year one or two associate professors are designated as assistants of the titular professor. The extraordinary professor is designated according to his recognized reputation in his specialty, with special contract in each instance for a determinated period. He can also be of foreign nationality (the titular and associate professors may not). The retiring professor can be nominated honorary professor in recognition of his merits. The titular professors have a monthly remuneration of 1,800 pesos, which is increased 10 per cent every five years, and, if they are on a full time basis, of 3,500 pesos, which is increased 10 per cent every ten years. The associates receive 800 pesos per month if they are assistants, or 1,500 if full time.

The candidate for a university professorship begins with a period of adscription during which he has to do scientific work and teach under the direction of the titular. He takes a final examination. The next step is called complementary teaching, after which he will be authorized as lecturer, either by examination or by general competition. Everybody who has finished his university studies in a normal way and who follows his profession ten or more years and presents enough scientific work, papers, titles and the like, has the right to apply for permission to teach. If accepted, he receives the "venia docendi," i. e., permission to teach in regular and systematic form.

Every faculty has a so-called general "claustro" which includes all the titulars of the faculty plus one third as many associates, chosen by lot. Attendance at the meetings of the claustro is compulsory. It deals only with the annual report of the dean and the curriculum and plan of studies.

The student body is divided in regular and free students. Regular students must assist with the practical courses according to special prescriptions of each faculty (nothing is said about their compulsory assistance at theoretic lectures; this item had been foreseen in the original draft but had been suppressed by the senate of the parliament).

The students of each faculty elect, by lot, one representative for the directing council from among the ten best senior students. This delegate can express freely the opinion of the students he represents, but he has no vote in the decisions taken by the council.

A special organization for distributing fellowships among the regular students has been created (the "free" students cannot

obtain them). There are two classes of fellowships, one for studying and one for stimulating. The first are for students of poor families; these fellows receive not only free tuition, books and so forth, but also financial aid.

To finance the expense of this new law there are two sources: the national budget and a new special tax of 2 per cent, which every employer has to pay on every salary or wages paid in Argentina, except those of domestic servants and payments made by the national, provincial and municipal authorities.

To coordinate the work of the universities and to advise the national government, a National University Council is created, comprising the rectors of all Argentine universities and presided over by the Minister for Justice and Public Instruction.

One item of the law has not yet been promulgated by the president of the republic, namely, that which determines the incompatibility of the function of a titular professor with other public activities. This has been done owing to the protest of a number of persons interested in this point, who explained the difficulties which this rule may create.

Brief Items

The First Argentine Congress of Bronchoesophagology was held, under the honorary chairmanship of Professor Chevalier L. Jackson of Philadelphia, who gave courses in Buenos Aires and in Córdoba at the invitation of the corresponding Argentine societies. Argentine chairman of the meeting was Dr. Alvaro Bence. The subjects treated were: diagnostic and therapeutic indications of bronchology and esophagology, hospital services of oral endoscopy and oral endoscopy in children.

Institute for Scientific Investigation

Last November in Buenos Aires the Institute for Biochemical Investigations (Foundation Campomar) was inaugurated. The institute was donated and is maintained by Mr. Jaime Campomar. It is a sister institute to that of Dr. B. A. Houssay, situated beside it and in interdependence with it. Its director, Dr. Luis F. Leloir, is a pupil of Houssay, and so are also the collaborators of the new institute. It consists of four laboratories which are specially equipped for metabolic research and enzyme studies.

Orthopedic Traction on the Skeleton

Dr. Carlos E. Ottolenghi, associate professor of orthopedic surgery, Faculty of Medicine of Buenos Aires, has completed an investigation for which he has just received the prize which is annually awarded by the Argentine Society of Surgeons. Ottolenghi studied in dogs and rabbits, as well as clinically, the tolerance of the organism for iron wire and traction, particularly the reactions of the tissues, the histopathologic changes, the technic of application and the resistance of different kinds which the wire has to overcome, the direction of the traction powers and the application of wire in children. Infection and exaggerated traction are the most important dangers of traction on the skeleton. He prefers to put the wires in tension according to Kirschner's technic without using the nails of Steinmann.

TURKEY

(From Our Regular Correspondent)

Ankara, Jan. 30, 1948.

Saliva Stones

A colonel at the military academy, Gülhane Hospital, Professor Dr. Necdet Albay encountered 3 cases of saliva stones and has published his observations. The first case was in a young man aged 22, who twenty days prior to admission to the hospital noticed in the lower jaw a swelling the size of a walnut. During meals the swelling and the pain increased and extended to the root of the tongue. As the roentgen examination did not show the stone, it was decided to excise the gland, which was done with the patient under local anesthesia. There was a small purulent pocket beneath the lower lobe and surrounded by extensive infiltration. Embedded in the gland was a stone the size of a pea. The gland was removed; the patient recovered and was discharged after fifteen days.

The second case concerned a woman, aged 36, who for three weeks had felt a swelling accompanied by pain in the lower jaw on the right side. One week prior to admission hospital the pain increased and there was swelling toward the tongue. The pain became unbearable. On roentgen examination the shadow of a small stone was visible. With the patient under local anesthesia the excision was performed, releasing an abundance of pus. After ten days' treatment the patient was discharged as cured.

The third case occurred in a man aged 45, under whose tongue there was a suppurative process from which, from time to time, small stones were cast out, under the lower jaw on the left side. A swelling which became especially painful during meals had developed three months' previously. The patient, who was advised to stay at the hospital, promised to return the next day but failed to do so.

Of the two stones excised, 1 weighed 5 Gm., the other 8 Gm. A saliva stone weighing 93 Gm. has been excised by Throwgood. One of the two stones was yellowish, the other gray; one soft, one hard. Their composition was calcium carbonate 10 per cent, calcium phosphate 30 per cent and organic matter 10 per cent. Saliva stones are found either in the salivary glands or in the salivary canal. Experiments have shown that the p_H of saliva during the day is 6.5 to 6.9 and during the night is slightly lower. According to Brickman, the average p_H is from 5 to 8. Experiments made on 50 patients at the department of jaw surgery at the Gülhane Hospital in Ankara showed that the p_H of the saliva of 2 patients was 6; of 10, 6.5; of 7, 7.1; of 15, 7.5, and of 15, 8.

Saliva stones are rare in Turkey. It is possible that afflicted persons fail to consult a physician; however, there is little concerning saliva stones in Turkish medical literature.

Anniversary of Child Welfare Society

The Turkish Child Welfare Society, a gift of the republican government, has since its incorporation in 1923 been directed by Dr. Fuad Umay, M.P. There are branches in all parts of the country with headquarters in Ankara, to which donations, gifts and contributions of the 100,000 members are forwarded. The society derives its income from various sources. During child welfare week, which begins on April 23, the national holiday, and all other national and religious holidays, a small tax stamp is affixed to all outgoing mail and special cable forms are issued; bazaars and children's balls are given at certain seasons in a number of towns; there are voluntary contributions in the form of special stamps to be affixed to documents or transportation tickets; rent is obtained from buildings in Istanbul and Ankara owned by the society; funds are allocated from the government budget, from municipalities and private administrations; the organization of lotteries, plays, national dances, sports and races also augments the income. The society receives in addition contributions from abroad, especially from Turkish people living in the United States, who donate considerable sums every year.

The one hundred bed modern children's home for foundlings, orphans and other poor children is directed by pediatricians, and a school for the training of children's nurses is attached to the home. The society has also established free dental clinics for children; dispensaries, policlinics, soup kitchens and bathhouses for children and their mothers, and swimming pools for the use of children only.

Established and operated by the society are twenty-eight children's homes, twenty-one nursery schools, three maternity homes, thirty-six soup kitchens, six homes for poor pupils, nine bathhouses and swimming pools, forty-four dispensaries for mother and children, fifteen free milk dispensaries for babies' formulas, three dental clinics, free school lunch programs in ninety-nine schools, five children's libraries and sixty-six modern playgrounds.

Persons who have promoted the work of the society are presented with a bronze, silver or gold medal. Twins, triplets and quadruplets born to poor mothers are taken under the protection of the society. The mother is given a monetary reward, is provided with free milk and is sometimes presented with a milch cow.

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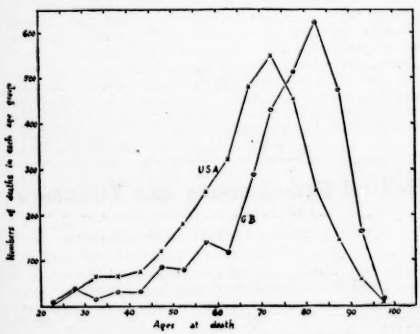
Correspondence

COMPARISON OF DEATHS AMONG PHYSICIANS IN UNITED STATES AND GREAT BRITAIN

To the Editor:—The Analysis of deaths among physicians in the United States for the year 1947 (THE JOURNAL, January 24, p. 252) prompted a similar analysis of British figures. We had in mind the possible effects of the more even tenor of English life and the effects of the "austerity" on those inclined to excess weight with its attendant dangers and diseases.

The accompanying graph was constructed from an analysis of the 3,040 deaths during 1947 referred to in THE JOURNAL and from 391 deaths of British physicians culled from the obituary columns of the *Lancet* from July 1945 to December 1947. In only about half of the British physicians listed were the ages at death stated, and it is possible that this group is not representative.

For comparison the British figures were recalculated to show what they would have been had the total deaths been raised from 391 to 3,040. For whatever it may be worth, the graph shows that the British have, in proportion, two or three times as



Comparison of ages at death of physicians of the United States and of Great Britain.

many physicians reach the age of 80 and over as do the United States. The peak of the British curve is about one decade higher than the American. Some comments from readers might be interesting.

PHEBE HOFF, M.A., and FRANK L. APPERLY, M.D.
Richmond, Va.

INTRAOCULAR FOREIGN BODIES

To the Editor:—In the Dec. 6, 1947 issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, page 894, Dr. George Haik makes an excellent contribution in his article on "Intraocular Foreign Bodies." Due to education and safety devices, fortunately, intraocular foreign bodies are not as frequently encountered as they were during the early part of the century. The late Dr. George Sloan Dixon of the New York Eye and Ear Infirmary told me that when he was pioneering in roentgen localization there were always several patients to be examined roentgenologically each day. Now weeks go by without even 1 case being seen. With the decrease in cases has come need of articles like that of Dr. Haik to make up for lessened experience among eye surgeons.

Dr. Haik emphasizes need of accurate localization of intraocular foreign bodies. Until the advent of the Berman and Carney locators this had to be done only by roentgen ray. (The Carney locator I have never seen.) The various technics of roentgen localization take special skill, which unfortunately is not available in most communities. The Berman locator and presumably the Carney locator can be used by a surgical team without aid from another department of a hospital or a different set of specialists. All the work can be done in an operating room. These locators are available immediately for emergencies, day or night, Sundays, holidays and week days. One does not have to summon the roentgenologic group, wait for plates to dry and for interpretation and charting. With the Berman locator the surgeon can get instant pinpoint localization.

Probably Dr. Haik was not aware that the Berman locator can detect nonmagnetic as well as magnetic foreign bodies. In addition in magnetic foreign bodies it furnishes valuable information ahead of time of how much magnetic force will be needed to extract a magnetic foreign body. Dr. Haik calls attention to the dangers of using too much force, and he correctly warns against diagnostic trials with the magnetic extractor.

It seemed to me that Dr. Haik overemphasized delay in removing intraocular foreign bodies. During the past three years I have been successful in removing intraocular foreign bodies within an hour after hospital admission. Localization was performed by the Berman locator in my office before the patient was sent to the hospital, and extraction was performed with the aid of another Berman locator in the operating room. Roentgen films were often not taken for a week or ten days and were then taken only to have a tangible record. I think all patients with intraocular foreign bodies require emergency treatment, and now with the aid of the Berman locator they can receive the attention they deserve.

LOREN GUY, M.D., New York.

LABELING PROTEIN PREPARATIONS

To the Editor:—A curious oversight appears to be common in biochemical and medical literature and in the trade customs of labeling protein preparations; it arises from considering the protein portion of a nutritional preparation to yield protein for both tissue building and energy production. For example, a unit of a nutritional product containing 50 Gm. of protein is considered to provide 50 Gm. of protein and 200 calories (4 calories per gram of protein).* This may be misleading, for if all the protein is efficiently used to form tissue protein, no calories can be provided by it; conversely, if each gram of the protein is to produce 4 calories, the protein must be completely burned and thus can form no tissue protein. The number of calories actually furnished by 1 Gm. of protein will range from 0 to 4; the more efficiently the protein of the product is utilized to synthesize tissue protein, the fewer calories will be furnished.

Of nine protein or protein hydrolysate preparations selected at random, seven were found to make claims for caloric equivalents, all apparently based on the assumption that each gram of protein yields approximately 4 calories. Since all these preparations are intended to supply their protein component for protein anabolism, it seems inconsistent to imply that the same protein is also available for calorie production.

A second, though less important, assumption is that protein hydrolysates are equal to protein in caloric value, but the approximation involved here is in general acceptable.

It is suggested that protein preparations intended to provide protein for tissue-protein synthesis should not be claimed to have caloric value except as the latter is provided by added constituents of the type actually burned in the body. Ordinarily, these constituents will be carbohydrate and fat only.

ARTHUR CHERKIN,
Research Department, Don Baxter, Inc.,
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Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Food and Drug Acts: Evidence of Misbranding of Device.—The United States filed a libel against sixteen Sinuothermic machines, owned or manufactured by the claimant, on the ground that they were misbranded when shipped in interstate commerce. The misbranding was alleged to have consisted of printed matter accompanying them which represented that the machines had a therapeutic value in the diagnosis and treatment of stated diseases of man, whereas the devices were not effective for such purposes. From a judgment of condemnation and destruction, the claimant appealed to the circuit court of appeals, fifth circuit.

The federal law prohibits the introduction into and the receipt in interstate commerce of any food, drug, device or cosmetic that is adulterated or misbranded and provides for seizure and condemnation of such. It is not denied that these machines were devices within the act. A drug or device shall be deemed to be misbranded, within the federal act, if its labeling is false or misleading in any particular. The term "labeling" means all labels and other written, printed or graphic matter on any article or any of its containers or wrappers or accompanying such article. The last three words, said the court of appeals, are critical here. They make the term "labeling" broader than "label," which includes only what is displayed on the immediate container of an article. How much broader? The sixteen devices in question were shipped in several consignments from a place in Florida to a designated place in Ohio. The first three shipments went forward and were received by the proper party and put to work in his medical practice several weeks before any leaflets were sent. They did not accompany any of the devices while they were in interstate commerce. The last of the shipments went forward three weeks after the leaflets and was not accompanied by them. Accompany, said the court, means to go along with. In a criminal and forfeiture statute the meaning cannot be stretched. Furthermore, it may be doubted, said the court, that the printed matter is in its nature a labeling for the machines. It looks like a small newspaper, entitled "The Road to Health, by Dr. Fred Urbeteit. Every subject pertaimng to Health, Doctoring and Nursing is being taught at the College of Sinuothermic Institute, Inc., 307 West Euclid Ave., Tampa, Florida." To the left of this heading is a picture of Dr. Fred Urbeteit, president of Sinuothermic Institute, Inc., and to the right an attractive picture of the institute and its grounds. Fifteen columns of fine print are below, consisting of testimonials and case histories of patients who had been treated at the institute by Dr. Urbeteit, with unstinted praise of both. The Sinuothermic machine is mentioned and praised as an instrument of diagnosis and treatment, but there is no description or picture of the machine, no explanation of its operation and no suggestion that it is for sale. The whole thing, said the court of appeals, appears to be an advertisement for the institute and Dr. Urbeteit, rather than something to accompany machines. Whether we ought to hold it a labeling of these machines if shipped simultaneously with them, the court continued, may be doubted. But if it could be called labeling, it is not proved by the present skimpy evidence that it accompanied the machines or any one of them while they were in interstate commerce.

The claimant vigorously contended that all he had said in "The Road to Health" was true. He offered in his claim, since no employee of the United States and only a few practitioners whom he had instructed, had any actual knowledge of his machine, to conduct a series of tests of it in cooperation with practitioners of medicine, osteopathy, chiropractic and naturopathy approved by the court, preferably on persons previously treated by medical practitioners without success, they to be examined before and after the test by physicians appointed by the court during such period as the court should fix, the physicians' determination of the results to be evidence in the case. This was not done. Dr. Urbeteit at least seems convinced of the efficacy of his machine, said the court of appeals. He testified in detail as to each case mentioned in "The Road to Health." He had present 30 of his patients, whom he offered as witnesses to the benefits they had received, many of them being those mentioned in "The Road to Health." The trial judge refused to hear them on the ground that, being laymen, they could not testify as to what was the matter with them and consequently could not say what they were relieved from, and that the diagnoses testified to by Dr. Urbeteit could not be accepted because he rested them on the use of his machine which the government's witnesses, who were men of high standing in medicine and in the electrical arts, had testified could not do what Dr. Urbeteit claimed. These rulings, said the court of appeals, were error. One was based on the idea that Dr. Urbeteit had made his diagnoses solely on the indications of the machine. But his testimony as a whole was that he used all known methods of diagnosis, that the machine did not indicate any particular disease but only located the spot where the abnormal tissue was, and that it was then a matter of judgment as to what the disease was. He only claimed the machine to be an aid in diagnosing. The patients themselves, said the court, could certainly know whether their external symptoms abated and their pains ceased. Urbeteit, being a licensed doctor of some twenty years' practice, could express expert opinions. The judge might, continued the circuit court of appeals, after hearing all the evidence, prefer the expert opinions of the government witnesses to those of Dr. Urbeteit, even as against the facts to which he and his witnesses might swear, but the judge should have heard all the competent testimony before making up his mind. The most eminent physicians and scientists have in the past erred in their opinions, and opinions generally must yield to well proved contrary facts. The case, the court concluded, ought to have been more fully tried. Accordingly, the judgment in favor of the government was eversed and the cause was remanded for further proceedings.—*Urbeteit v. United States, 164 F. (2d) 245 (1947).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARD OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL March 6, page 713.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I & II.* Various centers, June 21-23. Final date for filing application is May 22. *Part II.* Various centers, April 26-27. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* New York, April 12-15 Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 18. Final date for filing application is June 1. Asst. Sec-Treas., Dr. W. A. Werrell, 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* June 1949 Final date for filing application is Feb. 1, 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral. All Groups. Part II.* Washington, D. C., May 16-22. Final date for assignment is April 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* Baltimore, May 20. Chicago, Oct. 6. *Written.* Various centers, Jan. 1949. Final date for filing application is July 1, 1948. Sec., Dr. S. Judd Beach, 5o Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, January 1949. Final date for filing application is August 15. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, June 15-19. Sec., D. M. Lierle, University Hospital, Iowa City, Iowa.

AMERICAN BOARD OF PATHOLOGY. Philadelphia, March 8-10 Final date for filing application is March 1 Sec., Dr. Robert A. Moore, 507 Euclid Ave., St Louis, Mo.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Cleveland, April 23-25. Chicago, June 25-27. Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. *Written.* March 12 July 30. Sec., Miss Lea Leonard, 718 Royal Union Bldg., Des Moines, Ia.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in April and November of each year in the home town of applicants Sec., Dr Robert H. Ivy, 1930 Chestnut St., Philadelphia.

AMERICAN BOARD OF SURGERY: *Written. Part I.* October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

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Current Medical Literature

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Titles marked with an asterisk (*) are abstracted.

American J. Obstetrics and Gynecology, St. Louis

54:905-1094 (Dec.) 1947. **Partial Index**

*Precursors of Corpus Carcinoma Estrogens and Adenomatous Hyperplasia. S. B. Gusberg.—p. 905.
*Fatal Eclampsia: Clinical and Anatomic Correlative Study. G. T. C. Way.—p. 928.
Elevated Blood Pressure in Pregnancy: Report of 1,800 Cases. W. F. Dillon and H. E. Schmitz.—p. 948.
*Anticoagulation Therapy with Heparin/Pitkin Menstruum in Thrombo-Embolic Disease Complicating Puerperium and Gynecologic Surgery. H. J. Greene and L. Loewe.—p. 958.
Cancer; Evolutionary Reversion in Cell Metabolism. W. B. Ayre and J. E. Ayre.—p. 970.
*Cervical Cancer in Young Girls. H. Speert.—p. 982.
Face Presentation. S. J. Rudolph Jr.—p. 987.
Relation of Mothers' Diets to Status of Their Infants at Birth and in Infancy. L. W. Sontag and Janet Wines.—p. 994.
Premature Survival Index and Conduct of Premature Labor. A. L. Dippel, H. W. Johnson and J. L. Cornelison.—p. 1004.
Late Dystocia Treated by Norton Extraperitoneal Cesarean Section. W. Levine and S. Weiner.—p. 1013.
Adenocarcinoma Arising in Endometrial Cyst of Ovary. A. Miller, D. M. Grayzel, M. Schiffer and P. Rosenblatt.—p. 1022.
Immediate Postpartum Period as Fourth Stage of Labor. C. T. Javert.—p. 1028.
Premature Quadruplets. T. S. Bowyer and G. W. Corner.—p. 1033.
Nonfatal Pulmonary Embolism by Amniotic Fluid Contents with Report of Possible Case. L. M. Seltzer and W. Schuman.—p. 1038.
Erythroblastosis Fetalis Due to Intragroup Rh Incompatibility. L. H. Tisdall, M. R. Marsh and E. T. Hartnett.—p. 1047.
Erythroblastosis Fetalis in Infant of Primigravida. H. C. Spalding.—p. 1052.
Travel in Pregnancy. W. B. Beach Jr.—p. 1054.

Precursors of Corpus Carcinoma.—Gusberg reports on the endocrine-tumor relationship in four groups. The endometrial hyperplasia produced by granulosa cell tumors and the accumulating evidence of association of estrogen-producing ovarian tumors with carcinoma of the corpus uteri, together with data obtained from study of the pattern of adenomatous hyperplasia produced in such cases, are suggestive of an estrogen-cancer relationship. The second group studied concerned human endometrium with advanced degree of hyperplasia produced by prolonged administration of estrogens. None of these endometriums could be called malignant, but all appeared very active, and some varied sufficiently from the well known pattern of cystic glandular hyperplasia so as to convince both pathologist and clinician that the patient's interests would best be served by prophylactic hysterectomy. With regard to the third group, adenocarcinoma of the human endometrium following prolonged administration of estrogens, it appears that in spite of the common use of hormonal therapy for menopausal symptoms in recent years there have been few reports of resultant uterine carcinoma. The author presents the histories of 5 patients in whom adenocarcinoma of the corpus uteri developed after prolonged administration of estrogens, and 3 carcinomas of the corpus and an ovarian adenocarcinoma the development of which may have been accelerated by administration of estrogens and their histologic pattern modified. Studies in the fourth group concerned endometrial patterns in patients with recurrent episodes of "functional bleeding." The well defined histologic pattern recurring in these related groups of tissues suggests that endogenous or exogenous estrogens play a role in the development of carcinoma of the corpus uteri.

Fatal Eclampsia.—Way reviews 33 fatal cases of eclampsia which were subjected to necropsy. Analysis of the clinical histories has been presented in relation to age, parity, race, prenatal care, family history, previous medical and obstetric history, symptoms, physical findings on admission, duration of pregnancy, chemistry of the blood and duration of hospital stay prior to death. Hepatic lesions consisted of focal fibrinoid necrosis, with or without hemorrhage. Renal lesions have been divided into three stages which represent steps in the development of permanent renal change: Stage 1, with glomerular but without arteriolar alterations, was typical in 33 per cent of the cases; stage 2, characterized by thickening of the arteriolar wall, was observed in 48 per cent of the cases, and stage 3, with lesions similar to arteriolonephrosclerosis, characterized 18 per cent of the cases. Eleven patients had hemorrhage and necrosis in the adrenal glands. Additional lesions found were: pneumonia; focal necrosis of the myocardium, pancreas and brain; acute endometritis; cerebral hemorrhage; cystitis; acute mastitis, and cerebral arteritis and arteriolitis. An attempt is made to correlate the observed lesions with some current hypotheses concerning the pathogenesis of eclampsia.

Anticoagulation Therapy in Puerperium and Gynecologic Surgery.—Greene and Loewe say that during the past three years 251 patients with venous thromboembolic disease received heparin subcutaneously in the Pitkin menstruum (gelatin 15 to 30 per cent, dextrose 5 to 12 per cent, glacial acetic acid 0.5 per cent, and distilled water) with gratifying results. Fifty-three of these 251 subjects were obstetric or gynecologic patients. The treatment of venous thromboembolic disease with subcutaneous heparin in the Pitkin menstruum was attended with lessened morbidity, prompt and rapid clinical improvement, and little or no residual edema. The causative factors responsible for the one treatment failure have been analyzed. Treatment failures with other methods responded with recovery after the routine administration of the heparin/Pitkin menstruum preparation. The subcutaneous administration of heparin in the Pitkin menstruum is recommended as a safe, simple, practical and effective method for anticoagulation therapy in thromboembolic disease complicating the puerperium and gynecologic surgery.

Cervical Cancer in Young Girls.—Speert presents 2 cases of cervical carcinoma in girls aged 12 and 19 years, respectively. Case 1 is the seventh reported instance of carcinoma of the cervix in girls age 12 or under. In contrast to the preponderance of epidermoid cervical cancer in adult women, adenocarcinoma is the commonest type of cervical carcinoma in young girls. The poor prognosis associated with cervical cancer in young girls in the past may be the result of inadequate treatment.

American Journal of Ophthalmology, Cincinnati

30:1345-1484 (Nov.) 1947

Vitreous Infections and Streptomycin: Experimental Studies. I. H. Leopold, Marjorie Wiley and R. Dennis.—p. 1345.
*Pigmentation of Palpebral Conjunctiva Resulting from Mascara. A. B. Reese.—p. 1352.
Acute Reversible Cataract in Chicken Due to Various Nitrocompounds. W. Buschke.—p. 1356.
Virus Studies in Lymphomatoid Diseases of Ocular Adnexa. A. E. Braley and Rose C. Alexander.—p. 1369.
Cyanide Inhibition of Corneal Respiration. W. A. Robbie, P. J. Leinfelder and T. D. Duane.—p. 1381.
Visual Effects of Tridione. Louise L. Sloan and Anita P. Gilger.—p. 1387.
Effects of Di-Isopropyl Fluorophosphate Vapor on Eye. W. H. Aldridge, H. Davson, E. B. Dunphy and G. I. Uhde.—p. 1405.
Some Methods of Lid Repair and Reconstruction: IV. Total Reconstruction of Upper Lid. S. A. Fox.—p. 1412.
Technical Methods for 1/2,000 Field. M. Chamlin.—p. 1415.
Clinical Use of Di-Isopropyl Fluorophosphate (D.F.P.) in Chronic Glaucoma. W. G. Marr.—p. 1423.

Mascara Causing Pigmentation of Palpebral Conjunctiva.—Reese observed a granular, stippled pigmentation under the palpebral conjunctiva of both upper lids of a middle-aged woman. The nature of the lesion was not recognized at first. The condition showed no appreciable change after ten months. The pigmentation was situated at each extremity of the tarsus on a level with its upper border. It was located under rather than in the conjunctiva. Over the pigmented area there was a folliculosis and slight congestion. The condition was identical in both lids. After two and one-half years, there had been some

extension of the pigmentation. It could be seen as a narrow line along the upper border of the tarsus, fading out in the central portion. In addition, a motlted, deep-seated, bluish black pigmentation could be seen under the conjunctiva of the lower lid. During the period this case has been followed, 6 additional cases have been observed. The symptoms referable to the condition are mild. There may be burning, redness and itching of the eyes, sleepiness, roughness and swelling of the lids, and desire to blink the eyes excessively. All the patients were women, 5 of whom admitted the constant use of mascara. It is concluded that the pigmentation of the palpebral conjunctiva results from the use of mascara or allied pigment-bearing cosmetics but that there is some factor peculiar to the individual determining its occurrence, because this pigmentation does not develop in everyone who uses mascara.

American Journal of Physiology, Baltimore

151:1-238 (Nov.) 1947. **Partial Index**

Regional Intrathoracic Pressures and Their Bearing on Calculation of Effective Venous Pressures. C. J. Wiggers, M. N. Levy and G. Graham.—p. 1.
Studies of Venous Drainage of Heart. D. E. Gregg and R. E. Shipley.—p. 13.
Combination of Evans Blue with Plasma Protein: Its Significance in Capillary Permeability Studies, Blood Dye Disappearance Curves, and Its Use as Protein Tag. H. H. LeVeen and W. H. Fishman. —p. 26.
Effects of Muscle Trauma and of Hemorrhage on Cardiac Output of Dog. W. S. Root, W. W. Walcott and M. I. Gregersen.—p. 34.
Measurement of Cardiac Output by a Continuously Recording Conductivity Method. H. L. White.—p. 45.
Russell Viper Venom as Means for Following Anticoagulant Action of Heparin. E. J. De Beer.—p. 58.
Components of Prothrombin Complex. A. J. Quick.—p. 63.
Nitrogen Content of Femoral Arterial and Venous Blood in Anesthetized Dogs Denitrogenated by Continuous Inhalation of 99.6 per Cent Oxygen. L. Karel and R. E. Weston.—p. 71.
Effect of Thymectomy, Hyperthyroidism and Hypothyroidism on Neuromuscular Atrophy and Regeneration. R. Diaz-Guerrero, J. D. Thomson and H. M. Hines.—p. 91.
Thiouracil, Basal Metabolism and Specific Dynamic Action. Dulal Pada Sadhu and S. Brody.—p. 130.
Relaxation of Pelvic Ligaments in Guinea-Pigs by Estrogens and Prostigmine. F. E. Emery and A. H. Lawton.—p. 134.
Redistribution of Potassium, Sodium and Water in Burns and Trauma, and Its Relation to the Phenomena of Shock. C. L. Fox Jr. and H. Baer.—p. 155.
Effect of Pitressin on Urinary Excretion of Chloride and Water in Human. J. M. Little, S. L. Wallace, E. C. Whatley and G. A. Anderson.—p. 174.
Effect of Ureteral Ligation, Phloridzin and Mercury Bichloride on Glucogenic Function of Kidney. R. M. Reinecke, G. G. Rudolph and M. J. Bryson.—p. 198.
Renal Clearance of Essential Amino Acids: Their Competition for Reabsorption by Renal Tubules. K. H. Beyer, L. D. Wright, Helen R. Skeggs and others.—p. 202.

American Practitioner, Philadelphia

2:215-286 (Dec.) 1947

Treatment of Coronary Artery Disease. J. M. Askey.—p. 215.
Present Status of Diagnosis and Treatment in Peptic Ulcer Problem. A. X. Rossien.—p. 223.
Principles in the Use of Diuretics. A. J. Merrill.—p. 234.
Treatment of Itching Dermatoses with Antihistaminic Drugs with Particular Reference to Pyribenzamine. R. L. Baer, M. B. Sulzberger and V. H. Witten.—p. 237.
Diagnosis and Differential Diagnosis of Sprue. J. Preuss.—p. 241.
*Serum Concentrations of Penicillin Following Administration of Crystalline Penicillin G in Peanut Oil and Beeswax. W. L. Hewitt.—p. 247.
Treatment of Acute Infections of Nervous System. S. F. Gilpin Jr. —p. 253.
Adult Hypothyroidism: Observations Based on Study of 151 Cases, with Detailed Reports of 2 Typical Cases. N. Burnstein.—p. 257.
Treatment of Esophageal Obstruction. J. R. Verbrycke Jr.—p. 263.
Medical Control of Diabetes in Surgical Patient. W. W. Shapiro and H. O. Fenske.—p. 269.

Serum Concentrations of Penicillin.—Hewitt presents pharmacologic data concerning absorption of sodium and potassium salts of crystalline penicillin G suspended in a mixture of peanut oil and beeswax. Most of the subjects studied were normal postpartum women or young adults convalescing from various types of acute illness. Administration of 300,000 units of crystalline sodium penicillin G in peanut oil and beeswax produced demonstrable concentrations of penicillin in the serum at twelve hours after administration in practically all cases and at twenty-four hours after administration in 70 per cent of cases. A single injection of 600,000 units of crystalline sodium penicillin G in peanut oil and beeswax produced assayable concentrations of penicillin in the serum twenty-four hours after administration in 86 per cent of cases. Equal division of a given dosage of penicillin in peanut oil and beeswax between two sites and simultaneous injection produced higher maximum levels during the first eight hours after administration but resulted in a shorter duration of assayable concentrations of penicillin in the serum. The volume of peanut oil and beeswax in which a given dosage of penicillin was administered did not affect appreciably the height or duration of the serum concentration. Division of a daily dose of penicillin into two injections given at twelve hour intervals rather than in a single daily injection resulted in maximum levels of lower magnitude, but insured a more uniform concentration of penicillin in the serum at all times than with the employment of a single daily dose.

Archives of Surgery, Chicago

55:637-758 (Dec.) 1947

*Control of Arterial Hemorrhage by Gelatin Sponge "Cuff" and Chromic Surgical Gut Sheath: New Experimental Method. H. P. Jenkins, E. Senz, H. Owen and R. Jampolis.—p. 637.
Orthopedic Operative Procedures Allowing Early Motion. F. E. Stinchfield.—p. 650.
Interosseous Wiring in Treatment of Fractures of Mandible. S. Gordon. —p. 660.
*Chemotherapy in Gas Gangrene: Experimental Study. W. A. Altemeier, W. L. Furste and W. R. Culbertson.—p. 668.
Osteochondrosarcoma of Sternum: Use of Tantalum Plate as Prosthesis. R. A. Griswold.—p. 681.
Hernial Repair Using Cooper's Ligament: Follow-Up Studies on 367 Operations. H. N. Harkins and R. H. Schug.—p. 689.
Effect of Distention of Biliary Tract on Electrocardiogram: Experimental Study. G. B Hodge, A. L. Messer and H. Hill.—p. 710.
*Treatment of Postoperative Swelling of Arm Following Mastectomy: Preliminary Report. H. A. Hanelin, J. M. Williams, S. M. Wolffson and E. D. Wernick.—p. 723.
Neurovascular Syndrome of Arm Associated with Hypertrophied Subclavius Muscle: Report of Case, Including Operative Treatment. E. E. Cliffton.—p. 732.
Precautionary Administration of Penicillin in Surgical Procedures on Bones and Joints. J. Buchman and J. E. Blair.—p. 743.

Control of Arterial Hemorrhage.—Jenkins and his associates attempted to control arterial hemorrhage with the gelatin sponge patch. All of the 22 dogs on which the authors made their experiments survived the immediate postoperative period. In 5 animals in which the gelatin sponge "cuff" alone was used to control hemorrhage from a wound of the aorta, a blowout occurred in 2 and caused death from massive retroperitoneal hemorrhage. The other animals in this series died on the second, third and sixth days after operation from distemper and pneumonia. There was no evidence of secondary hemorrhage in these animals, and the lumen of the vessel was found to be patent. The gelatin sponge cuff was rather badly fragmented, especially where the sponge was held by sutures. In the 16 animals in which the gelatin sponge "cuff" was supported by a sheath of chromic surgical gut there was only one blowout from the arterial wound. Six animals died from distemper and pneumonia, or were killed, on the third, the sixth, the ninth, the tenth, the eleventh and the fourteenth day. The sponge "cuff" and sheath were found to be intact, and the lumen of the vessel was patent and free from thrombosis. Eight animals survived for longer periods and were killed. The location of the wound in the vessel wall could be detected as a white scar which was apparently well healed over. The authors conclude that the gelatin sponge cuff and chromic surgical gut sheath offer a new method which may have a clinical application such as in the emergency treatment of wounds of major arteries, where one may not be in a position to do a careful arterial suture, and as a "secondary line of defense" against blowouts where arterial suture has been performed for a wound of the vessel or for anastomosis.

Chemotherapy in Gas Gangrene.—Altemeier and his co-workers produced infections with gas gangrene in animal experiments by inoculating bacterial cultures through hypodermic needles into healthy muscle. Infections produced under such conditions are different from those occurring in the clinic. This difference is largely responsible for the discrepancy between the obvious effectiveness of penjcillin in gas gangrene experimentally produced and its questionable value in the type

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occurring clinically. A standardized experimental gas gangrene is now produced in the presence of crushed muscle and dirt, thus closely simulating conditions of the clinical type. Guinea pigs were chosen as the experimental animals, because of their pronounced susceptibility to infection with Clostridium welchii, which resembles that of human beings. Streptomycin was found to have no significant therapeutic value. Penicillin had a notable beneficial effect on the rate of development and the extensiveness of the infection as well as on the mortality. Since the effect of chemotherapy was greatly modified by the time of onset and the size of the dose, it would seem advisable to administer penicillin parenterally as soon as possible and in conjunction with surgical treatment in persons with gas gangrene or with wounds of the type which predisposes to its development and to continue using it thereafter in doses up to 1,000,000 units every three hours until the threat of this infection is over.

Postmastectomy Swelling of Arm.—Hanelin and his collaborators review observations on 25 patients with this disorder. Injection of 5 cc. of a 1 per cent solution of procaine hydrochloride into the stellate ganglion at periodic intervals will help to relieve symptoms referable to swelling of the arm following mastectomy. They employed this treatment in 21 of the 25 patients. Nineteen reported that they were benefited by the treatment. Of the 4 control patients who did not have a paravertebral block and who were observed for the same period (six months), none exhibited any improvement of the arm as compared with those who had it one or more times. Improvement of the circulation and the mobility of the involved arm subsequent to the paravertebral block are definite steps forward. The clinical improvement seems dependent to a great extent on the number of times paravertebral block is carried out; the more frequent the block, the more persistent and prolonged the response. The authors speculate on the advisability of doing sympathectomies for permanent reversal of this phlebospastic state.

Bulletin New York Academy of Medicine, New York

23:601-670 (Nov.) 1947

Psychosomatic Aspects of Allergic Disorders. E. Weiss.—p. 604.
Effect of Trauma and Strain on Production and Aggravation of Heart Disease. H. B. Sprague.—p. 631.
Extrarenal Sequel to Experimental Renal Hypertension. E. Ogden. —p. 643.
Treatment of Acute Anterior Poliomyelitis with Curare and Intensive Physical Therapy. N. S. Ransohoff.—p. 661.

Cincinnati Journal of Medicine

28:717-790 (Nov.) 1947

President's Inaugural Address. M. A. Blankenhorn.—p. 717.
Poliomyelitis in Cincinnati in 1946. J. A. Browning.—p. 724.
Homologous Serum Hepatitis: Clinical Implications. L. Schiff.—p. 736.

Homologous Serum Hepatitis.—Schiff emphasizes the importance of homologous serum jaundice in the differential diagnosis of jaundice, with particular respect to (1) metastatic neoplasm of the liver in patients who have had a recent resection of a malignant tumor, (2) stricture of the common duct (or sometimes stone) in patients who have had a recent operation on the biliary tract, usually a cholecystectomy and (3) neoplasm as a cause of painless jaundice in middle-aged or older persons. He cites histories to illustrate these three problems and lists the important data of the 6 cases presented. He and his 2 associates have seen 11 cases of serum jaundice in a little more than a year. They believe that many cases are overlooked because the condition is not usually considered in the differential diagnosis of jaundice. It is rather probable that needless operations have been performed on this account. It is essential that the physician keep homologous serum jaundice in mind whenever he sees a patient with icterus, regardless of the age of the patient, particularly if there is a history of an illness or an operation two to five months before the development of jaundice, even if the operation was performed on the biliary tract. His suspicions should be confirmed by recourse to the cephalin cholesterol flocculation and thymol turbidity tests.

Endocrinology, Springfield, Ill.

41:335-436 (Nov.) 1947. **Partial Index**

Effects of Hypophysectomy on Serum and Storage Iron in Adult Female Rats. R. C. Crafts and B. S. Walker.—p. 340.
Significance of Endocrine Glands in Ripening of Reticulocytes. B. G. Christensen and C. M. Plum.—p. 347.
Effects of Low Barometric Pressure on Chemical Composition of Adrenal Glands and Blood of Rats. J. Tepperman, Helen M. Tepperman, Barbara W. Patton and L. F. Nims.—p. 356.
Observations on Fluorescence, Birefringence and Histochemistry of Human Ovary During Menstrual Cycle. D. G. McCay and D. Robinson.—p. 378.
Inhibition of Ovulation in Rabbit by Adrenergic-Blocking Agent Dibenamine. C. H. Sawyer, J. E. Markee and W. H. Hollinshead.—p. 395.
Stabilization of Alcoholic Potassium Hydroxide in Colorimetric 17-Ketosteroid Determinations. Hildegard Wilson and Priscilla Carter. —p. 417.
Urethral Smear as an Indicator of Sex Hormone in Male Rabbits. H. Bern and M. Klein.—p. 422.
Sex and Diabetes. V. G. Foglia, N. Schuster and R. R. Rodriguez. —p. 428.

Journal-Lancet, Minneapolis

67:393-426 (Nov.) 1947

Indications for Bone Graft Fracture Treatment. R. E. Van Demark. —p. 393.
Cooper's Ligament Herniotomy. V. G. Borland and J. H. Graham. —p. 397.
*Megaloblastic Anemia in Infants. R. A. Aldrich and E. N. Nelson. —p. 399.
Combined Effect of Streptomycin and para-Aminosalicylic Acid on Experimental Tuberculosis in Mice. G. P. Youmans, Anne S. Youmans and R. R. Osborne.—p. 403.
Glycerite of Hydrogen Peroxide; II. Comparison of Its Bacteriotoxic Action with that of Solutions Containing Iodine. E. A. Brown, W. B. Krabek and Rita E. Skiffington.—p. 405.
Health Service in College Program. R. I. Canuteson.—p. 409.
General Practitioner in His Community. W. A. Wright.—p. 411.
Hyperparathyroidism. L. J. Peterson.—p. 414.

Megaloblastic Anemia in Infants.—According to Aldrich and Nelson there exists a syndrome of macrocytic anemia in infants which is not uncommon and which may easily be mistaken for pernicious anemia on the basis of blood morphology alone. Zuelzer and Ogden considered this anemia to be a distinct entity, and have suggested naming it megaloblastic anemia of infants. During an eight month period Aldrich and Nelson observed 6 infants ranging in age from 6 to 9 months who presented the typical syndrome of infantile megaloblastic anemia. Zuelzer and Ogden regarded this anemia as the result of deficiency of a hemopoietic factor derived from "folic acid" or purified liver extract. The disease differs from pernicious anemia in adults by the complete and lasting cure effected, no relapses having been observed. Whereas Zuelzer and Ogden considered infection and nutritional deficiency as possible etiologic factors, the experience of Aldrich and Nelson places emphasis on nutritional factors. The diets of their patients were uniform in composition and regularly deficient in ascorbic acid. The fact that megaloblastic anemia has developed with a wide variety of diets points to a combination of factors which may cause a deficiency in some hemopoietic principle. The discovery of 6 cases of infantile megaloblastic anemia in the short period of eight months in one clinic indicates the necessity of the physician's being on the alert to recognize this type of anemia in infants.

New England Journal of Medicine, Boston

237:931-968 (Dec. 18) 1947

Anesthesia with Intravenous Pentothal Sodium and Local Nerve Block in Gynecologic Surgery. J. C. McCann.—p. 931.
*Bronchiectasis: Treatment and Prevention. T. L. Badger.—p. 937.
*Esophageal Stricture Following Agranulocytosis Due to Sulfonamide Therapy: Report of Case. B. D. Bryan.—p. 941.
The Doctor and Vocational Rehabilitation for Civilians in Massachusetts. H. A. Dallas.—p. 943.
Cutaneous Medicine. J. G. Downing.—p. 945.
Calcific Aortic Stenosis.—p. 958.
Carcinoma of Thyroid Gland, Giant Cell Type.—p. 960.

Bronchiectasis.—Badger says that in 400 cases of bronchiectasis treated in the Massachusetts General Hospital, 59 per cent were unsuitable for surgical treatment and other observers say that about 50 per cent of patients with bronchiectasis are unsuitable for surgical treatment. The patients not suitable for surgical treatment are those with too much or too little bronchiectasis, those with limited cardiovascular reserve, those with limited pulmonary reserve because of associated emphysema, those with concurrent disease and those who will not

submit to surgical treatment. Asymptomatic bronchiectasis does not require excision. About two thirds of all cases of bronchiectasis, with or without surgical treatment, require medical supervision and care. The medical management of bronchiectasis is directed toward mechanical drainage, control of infection, measures to improve the general health of the patient and the prevention of the condition before it occurs. The author regards postural drainage as the most important single mechanical procedure for emptying dependent bronchiectatic cavities of their secretions. Bronchoscopy remains an important procedure in bronchiectasis, and a necessary one in cases presented for surgical treatment. Chemotherapy in any form has so far provided no cure for bronchiectasis, but its judicious use in conjunction with mechanical drainage can make life bearable for many patients with severe bronchiectasis and can shorten the duration of the acute attacks of bronchitis and pneumonitis in milder cases. Improvement of general health requires good nutrition, rest, exercise and avoidance of lasting fatigue. Smoking may irritate a respiratory mucosa already inflamed with infection. Avoidance of exposure to cold and wet and sleeping in warm fresh air, rather than freezing cold drafty rooms, are of value to those who are sensitive to acute respiratory diseases. Prevention takes two major directions. The first is early diagnosis of bacterial pneumonias, with adequate chemotherapy. The second is reexpansion of atelectases that persist after pneumonias and acute respiratory infections, especially in children.

Esophageal Stricture Following Agranulocytosis.—Bryan reports the case of a woman, aged 38, in whom severe esophageal stenosis developed following agranulocytosis due to sulfonamide therapy. It is assumed that the same ulcerative process that caused the severe angina of the mouth caused ulcers in the esophagus and that, after the acute esophagitis had resolved, secondary cicatricial stenosis took place. Had the nature of the process taking place in the esophagus been appreciated sooner, bouginage at an earlier date might have prevented the resulting stenosis.

New Orleans Medical and Surgical Journal

100:253-296 (Dec.) 1947

Airblock in the Newborn Period. G. W. Salmon.—p. 253.
Postmortem Observations in Twenty-Two Premature Infants. J. B. Arey. —p. 258.
Present Status of Poliomyelitis Problem. V. W. Lippard.—p. 262.
Intramedullary Infusions in Infants. M. Sutton and P. Kelley.—p. 266.
Human Infection with Virus of Equine Encephalomyelitis, Eastern Type, in Louisiana. K. C. Milner, G. P. Kelley and M. F. Shaffer.—p. 270.
Farber's Test in Diagnosis of Congenital Intestinal Atresia. N. C. Woody.—p. 273.
Some Recent Experiences with Amebiasis in Children. Maud Loeber and J. S. D'Antoni.—p. 276.
*Family Outbreak of Lead Poisoning from Storage Battery Casings. D. Spizer.—p. 278.

Family Outbreak of Lead Poisoning.—The outbreak reported by Spizer concerned a family of 6 who lived in a shack with a stove and an open fireplace. The father, aged 30, the mother, aged 24, and 4 children, twins, a boy and a girl aged 3, a girl aged 2 and a boy aged 1, had all been in good health previously. The child of 2 years became ill with symptoms of coryza and diarrhea, then had convulsions and died. The twins, aged 3, and the boy aged 1 also became ill. Because of the familial character of the outbreak and the history of diarrhea, the tentative diagnosis on admission was possible shigellosis. With the discovery of stippled red blood cells the diagnosis of lead poisoning came to the fore. Treatment directed at immobilizing the lead was begun promptly. The children were given a diet high in calcium with a high ratio of phosphorus to calcium. This included a quart of milk a day. Vitamin D was given in the form of calciferol, 5,000 units daily. The children also received calcium lactate and sodium citrate. The twins and the year old boy were discharged in apparent good health after fifteen and ten days, respectively. The parents, who remained free from lead poisoning, were queried regarding possible sources of lead poisoning, and it finally came to light that storage battery casings had been used for fuel in the room in which the children slept. The authors cite literature on this source of lead poisoning and stress that children are more susceptible to lead poisoning than are adults.

New York State Journal of Medicine, New York

47:2495-2622 (Dec. 1) 1947

Surgical Procedures for Carcinoma of Rectosigmoid and Rectum. C. G. Heyd.—p. 2543.
Complications of Abdominoperineal Resection of Rectum for Cancer. G. E. Binkley and M. R. Deddish.—p. 2547.
Abscesses of Deep Perirectal Spaces: Their Significance, Diagnosis and Treatment. H. Courtney.—p. 2552.
Clinical Evaluation, Treatment and Follow-Up of Newly Acquired Tuberculous Lesions. W. G. Childress.—p. 2560.
Useful Procedures in Early Diagnosis of Liver Damage Following Exposure to Chlorinated Hydrocarbons. R. Gurney.—p. 2566.
*Certain Reasons for Failure Following Disk Operations. E. Campbell and R. D. Whitfield.—p. 2569.
Psychotherapy of Obese Patient. H. B. Richardson.—p. 2574.
Clinical Approach to Office Management of Diabetes Mellitus. F. Williams.—p. 2579.
Health Supervision of Infant and Preschool Child. E. R. Schlesinger. —p. 2583.
Head Trauma and Hypersensitivity of Carotid Sinus. A. D. Ecker and I. L. Ershler.—p. 2587.
Parkinsonism—Is It Surgical Problem? J. Browder.—p. 2589.
Psychotherapy in General Practice. L. A. Osborn.—p. 2593.
Hyperthyroidism: Its Diagnosis and Medical or Surgical Treatment. J. C. McClintock and W. G. Armstrong.—p. 2597.

Failure Following Disk Operations.—Campbell and Whitfield reexamined a series of 122 patients operated on one to nine years previously for removal of a ruptured intervertebral disk. On the basis of absence of pain and ability to return to their original work, 68 patients were classified as having obtained "excellent" results. The results in 33 patients were termed "good" because they were doing lighter work without pain or the same work with some discomfort and in 21 patients "poor" since they had not returned to work and since they complained either of pain or of motor weakness which prevented their resuming their usual activities. It is of significance that 19 of these 21 patients came under Workmen's Compensation while 13 were considered before operations to be poor psychologic risks. In some instances, however, the reasons for failure were persistent neurologic defects, such as motor weakness and obvious pain. At least 3 or 4 of this group had recurrences, but they have refused further procedures thus far. It is noteworthy that certain persistent postoperative neurologic defects, such as absent or diminished knee or ankle jerks or persistent areas of hypesthesia or even anesthesia, do not necessarily preclude an "excellent" or "good" result. One should operate only on those patients who cannot get along with conservative treatment, and, if operation be performed, it should be carried out at a time when the patient is having pain or disability rather than when he is in a remission. It is also of great importance that the patient operated on is anxious both to get well and to work again.

North Carolina Medical Journal, Winston-Salem

8:687-750 (Nov.) 1947

Tuberculosis in the Southern States. J. L. Wilson.—p. 687.
Recent Advances in Chemotherapy of Tuberculosis. H. M. Riggins. —p. 694.
*Treatment of Tuberculosis with Streptomycin. H. S. Willis.—p. 698.
Streptomycin Therapy in Tuberculosis of Tracheo-Bronchial Tree: Preliminary Report. W. Woodruff, C. G. Merkel and A. Stranahan. —p. 702.
Artificial Pneumoperitoneum in North Carolina. N. L. Anderson. —p. 706.
Principles of Pneumoperitoneum Treatment of Pulmonary Tuberculosis. J. S. Hiatt Jr. and R. S. Mitchell.—p. 710.
Pulmonary Resection for Tuberculosis. J. A. Moore.—p. 715.
High Temperature in Pulmonary Tuberculosis with Eventual Arrest of Disease: Case Report. P. A. Turner.—p. 717.
Rehabilitation in Treatment of Tuberculosis. C. D. Thomas.—p. 720.
Sequelae of Pulmonary Tuberculosis. H. C. Sweany.—p. 722.
Development of Tuberculosis Case-Finding Program in North Carolina. H. F. Easom.—p. 730.

Streptomycin in Tuberculosis.—Willis reviews the present status of streptomycin in the treatment of tuberculosis. In spite of the fact that 1,500 cases have been studied to date, no one knows what the drug really does in tuberculosis of many parts of the body—particularly the lymphatic system, the bone, the eye, the genitourinary tract, the skin and many types of pulmonary tuberculosis. Streptomycin should be used in miliary tuberculosis, tuberculous meningitis, tuberculous sinuses and fistulas and certain cases of "early" tuberculosis known to have been present only a few days or weeks. The drug should not be used in the average case of chronic fibrous

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or cavitary tuberculosis. It should not be given to patients unless the functional capacity of the kidneys is known to be normal. It should always be reckoned as an adjunct to the accepted measures of bed rest and collapse therapy, and never as a substitute for these. Since it is given to patients with active disease, it is highly desirable that the patient be in a sanatorium during treatment.

Northwest Medicine, Seattle

46:921-999 (Dec.) 1947

Surgical Treatment of Hypertension. P. G. Flothow and H. J. MacKay.—p. 937.
Surgical Versus Medical Treatment of Hypertension. M. H. Evoy. —p. 943.
Present Status of Vagotomy in Surgical Treatment of Peptic Ulcer. H. N. Harkins.—p. 945.
Present Status of Male Hormone Therapy. H. Lisser.—p. 949.
Tumor Intussusception: Report of 2 Cases. J. M. Hoffman.—p. 950.
Inversion of Puerperal Uterus: Case Reports. R. M. McKeown and J. Rankin.—p. 953.

Oklahoma State Medical Assn. Jour., Oklahoma City

40:441-476 (Nov.) 1947

Infant Cyanosis and Nitrates. G. F. Mathews and E. P. Sellner. —p. 444.
*Spontaneous Subarachnoid Hemorrhage, Diagnosis, Management and Prognosis: Presentation of 2 Cases Resembling Dietl's Crisis and 6 Fatal Cases of Ruptured Intracranial Aneurysm (Two Luetic). A. H. Ungerman and L. Lowbeer.—p. 445.
General Principles Underlying X-Ray Diagnosis of Mediastinal Tumors. E. Lachman.—p. 451.
*Dolophine (Dimethylaminoheptanone-Methadon) in Control of Pain in Bone and Joint Disorders. W. K. Ishmael and J. R. Stacy.—p. 454.

40:477-516 (Dec.) 1947

Common Nasal Allergies, Diagnosis and Treatment. H. F. Vandever. —p. 480.
Treatment of Urinary Incontinence. B. A. Hayes.—p. 482.
Pericarditis Simulating Coronary Occlusion. W. W. Rucks Jr.—p. 485.
Ophthalmologic Problems in General Practice. J. P. Luton.—p. 488.

Subarachnoid Hemorrhage.—Ungerman and Lowbeer review the present status of knowledge on subarachnoid hemorrhage and stress that it is a symptom and not a disease entity. In the vast majority the hemorrhage is due to a rupture of an intracranial aneurysm, particularly of the circle of Willis; arteriosclerosis, septic or infectious embolism, trauma, massive cerebral hemorrhage, intraventricular hemorrhage, blood dyscrasias, vascular cerebral neoplasm, postoperative focal necrosis of cerebral vessels, complication of encephalography, shock therapy and artificial hyperpyrexia contribute a small number of cases. The syndrome is usually characterized by the sudden onset of headache, nuchal rigidity, mild Kernig sign, vomiting, various degrees of hyperemia of optic disks, involvement of one or several of the cranial nerves, frequent changes in pupillary reactions, mild leukocytosis, mild elevation of temperature and slow pulse; the spinal fluid is under pressure and uniformly bloody with an xanthochromic supernatant fluid. Symptoms referable to irritation of various nerve roots, particularly those making up the lumbosacral plexus, may be present. The onset is sudden. Treatment is directed toward relief of headache, reduction of intracranial pressure, alleviation of excitement and adequate feeding. Subsequent surgical measures can be considered in suitable cases of aneurysmal rupture. The authors report 2 cases of confirmed spontaneous subarachnoid hemorrhage in which the initial symptoms resembled Dietl's or renal crisis. One of the authors performed necropsies in 6 cases of fatal subarachnoid hemorrhage. All were caused by rupture of an aneurysm of a basal cerebral artery. The diagnosis of syphilitic aneurysm was made in 2 cases, that of congenital aneurysm in 1 case and that of arteriosclerotic aneurysm in 3 cases. The authors think that syphilis plays a more important role in subarachnoid hemorrhage than is generally believed.

Methadon for Pain in Bone and Joint Disorders.—The control of pain in diseases of the bones and joints has always been a serious problem. The tendency toward chronicity of the diseases and injuries to the skeletal system and the ever present danger of addiction prevents many physicians from adequately relieving the pain of these patients. Ishmael and Stacy give a brief outline of the pharmacologic and clinical nature of the drug methadon ("dolophine" or "amidon") and report on the effectiveness of this analgesic in 106 orthopedic and arthritic patients treated in hospitals in Oklahoma City. The dosage was 2.5 mg. given orally every four to eight hours. This dose was needed as frequently as every two hours in a few cases and as infrequently as every twenty-four hours. In a few instances the drug was used hypodermically. The conditions for which the drug was administered included sciatica, rheumatoid arthritis, periarthritis of shoulder, causalgia, osteoarthritis, carcinomatosis, spondylitis, sacral pain, fractures and others. Some of the patients did not experience relief, but the impression was gained that the type of disorder has less to do with the efficacy of the analgesic than does the constitutional make-up of the patient. Some tolerated methadon who did not tolerate morphine or codeine. The authors conclude that methadon is a satisfactory analgesic for use in the control of pain of bone and nerve root. Its chief use is in patients whose pain is too severe for acetylsalicylic acid and too chronic in nature for morphine. The possible danger of habituation should be borne in mind until extensive clinical trial establishes whether this drug is definitely habit forming.

Public Health Reports, Washington, D. C.

62:1729-1756 (Dec. 12) 1947

Contributions of Sanitary Engineering Program of UNRRA to International Health. F. F. Aldridge.—p. 1729.
Report on Histopathology of Cutaneous Lesions of Case of Rickettsialpox. L. R. Hershberger.—p. 1740.

62:1757-1784 (Dec. 19) 1947

Dental Caries Prevalence and Tooth Mortality: Study of 24,092 Georgia Children in Twelve Communities. T. L. Hagan.—p. 1757.
Sickness Absenteeism Among Industrial Workers, First and Second Quarters of 1947. W. M. Gafafer.—p. 1773.

Southern Surgeon, Atlanta, Ga.

13:843-900 (Dec.) 1947

Notes on Abdominal Wounds Received in Battle. F. W. Rankin and L. E. Hurt.—p. 843.
Surgical Treatment of Hypertension. W. G. Crutchfield and J. De D. Martinez-G.—p. 852.
Some Factors in Thyroid Surgery Influencing Morbidity and Mortality. G. S. Fahrni.—p. 862.
*Vagotomy in Treatment of Peptic Ulcer. W. H. Cole, L. Walter and J. Reynolds.—p. 870.
Method of Study of Uterine Canal. W. B. Norment.—p. 885.

Vagotomy in Peptic Ulcer.—Cole and his associates discuss the status of vagotomy in the treatment of peptic ulcer on the basis of their own observations and reports in the literature. They think that good results will be obtained in 80 to 90 per cent of patients. Vagotomy appears to be particularly effective against gastrojejunal ulcer. Gastric dilatation, diarrhea, persistent or recurrent ulcer, thoracic pain (following transthoracic approach) and vagovagal reflex have been reported as complications of the operation. Gastric dilatation is reported as being one of the most frequent complications, although the authors noted it in only 10 per cent in their 30 cases. Gastric retention is common after vagotomy. In 2 patients of the authors' series so much obstruction developed that gastroenterostomy was necessary. Prolonged gastric decompression for three to six days will decrease the incidence of gastric retention. Elimination of gastric retention in all patients cannot be expected because obstruction may result from the ulcer scar if gastroenterostomy was not performed at the initial operation. It may be advisable to perform a gastroenterostomy along with vagotomy when the ulcer is large. The most serious reaction is cardiac and respiratory paralysis arising from vagovagal reflex; it may result in a fatality but fortunately is rare. The mortality rate should be less than 1 per cent. The authors have had no deaths in their series of 30 cases with 12 gastrectomies. It is probable that gastric resection is not necessary in such a large percentage of cases. The authors prefer the transabdominal operation but emphasize that if this approach is utilized meticulous search must be made for branches of the two vagus nerves, as they found three or more major vagus trunks in 90 per cent of their patients. Although results have been good, wholesale adoption of the procedure for all types of cases must not occur until sufficient time has elapsed for a correct appraisal of the permanent results.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Practitioner, London

159:351-426 (Nov.) 1947. **Partial Index**

Inguinal Hernia. H. Ogilvie.—p. 351.
Some Views on Femoral Hernia and Its Treatment. A. B. Birt. —p. 362.
Ventral Hernia. V. Pennell.—p. 369.
Hernia Problem in Children. L. Barrington-Ward.—p. 376.
Choice of Anesthetics for Operations on Hernia. J. Gillies.—p. 381.
Use and Abuse of Trusses. T. M. Thomas.—p. 388.

Quarterly Journal of Medicine, Oxford

16:211-314 (Oct.) 1947

Outbreak of Severe Infective Hepatitis in Burma. J. F. Stokes and A. A. Miller.—p. 211.
*Effect of Injection of Acetylcholine into Brachial Artery of Normal Subjects and Patients with Myasthenia Gravis. A. Wilson and H. B. Stoner.—p. 237.
Cryptogenic Acquired Hemolytic Anemias. J. A. Fisher.—p. 245.
Ascites in Chronic Disease of Liver. G. Higgins, A. R. Kelsall, J. R. P. O'Brien and others.—p. 263.
Studies on Mechanism of Fanconi Syndrome. J. M. Stowers and C. E. Dent.—p. 275.
Snake-Bite by Echis Carinata. R. H. Mole and A. Everard.—p. 291.

Effects of Acetylcholine.—Wilson and Stoner studied nicotine and muscarine responses to the intrabrachial injection of 10 to 80 mg. of acetylcholine in 13 normal subjects and 12 patients with myasthenia gravis. Striking differences were not observed in the response of normal subjects and of patients with myasthenia gravis. Myasthenic muscle was not found to be peculiarly hypersensitive to injected acetylcholine.

British Journal of Ophthalmology, London

31:713-776 (Dec.) 1947

Case of Metastatic Osteosarcoma in Choroid. V. T. Lees.—p. 713.
Effects of Nitrogen Mustard on Permeability of Blood-Aqueous Humor Barrier to Evans Blue: An Instance of Influence of Lesion in One Eye on Susceptibility of Other. H. Davson and J. P. Quilliam. —p. 717.
Peripheral and Central Disturbances of Visual Fields: Aspect of Di-Ophthalmology. N. A. Stutterheim.—p. 721.
Glaucoma Secondary to Fibrocystic Disease of Bone. J. W. E. Cory. —p. 731.
Variations in System of Trunks of Posterior Ciliary Arteries. T. Sudakevitch.—p. 738.
Transplantation of Vitreous: Preliminary Report. H. M. Katzin and J. Blum.—p. 760.
Autohemo-Therapy in Hordeolosis. H. J. Stern.—p. 766.

British Medical Journal, London

2:943-986 (Dec. 13) 1947

Prevention of Renal Damage by Use of Mixtures of Sulfonamides: Animal-Experimental and Clinical Studies. D. Lehr.—p. 943.
*Sulfamerazine Treatment of Pneumonia in Adults. H. Joules and S. D. V. Weller.—p. 947.
*Oral Penicillin in Treatment of Pneumonia in Adult. T. Anderson and J. B. Landsman.—p. 950.
Oral Penicillin in Young Children. A. I. Suchett-Kaye and R. B. Latter.—p. 953.
"Lymphatic Reactions" Among Relatives of Leukemic Patients. S. N. Ardashnikov.—p. 955.
Production of Rh Agglutinins Anti-C and Anti-E by Artificial Immunization of Volunteer Donors. J. J. Van Loghem.—p. 958.
*Dangers of Going to Bed. R. A. J. Asher.—p. 967.

Sulfamerazine for Pneumonia.—Joules and Weller say that there is a tendency to regard the sulfonamide drugs as superseded by penicillin not only in the severely ill but even in mild conditions where the former have proved adequate. They show that sulfonamide treatment for primary pneumonia in adults is satisfactory in the vast majority of cases and should be given before confirmation of a clinical diagnosis. The authors reviewed the last 189 proved cases of pneumonia, that is, those occurring since sulfamerazine became easily available. Cases in which pneumonia occurred as a terminal event in another mortal illness are excluded. Of 189 patients, 113 were treated with sulfamerazine from the start without a single death; 36 were treated with sulfamezathine (2-sulfanilamido-4-6-dimethyl pyrimidine) with 3 deaths, and 22 with penicillin with 1 death. Combined treatment was given to 12 patients, 1 of whom died. The remaining cases were so mild that no specific therapy was deemed necessary. The authors stress that sulfamerazine, which can be given in relatively small doses at intervals of eight hours, is a satisfactory therapeutic agent. The results are such that pneumonia can be treated at home and be reduced to a "two day fever." If there is no response within forty-eight hours the case should be reviewed at once and the facilities provided by the hospital for further investigation and treatment should be employed. The need for radiologic demonstration of complete resolution of the disease is emphasized, as is the need for adequate convalescence. Sulfonamide treatment is less troublesome than penicillin therapy. With the newer sulfonamide preparations there is no need for frequent dosage, with consequent loss of sleep. Toxic effects are minimal, provided administration is not too prolonged.

Oral Penicillin in Pneumonia.—Anderson and Landsman investigated the efficacy of penicillin administered orally to an unselected series of male patients with pneumonia. The patients were classified in two groups, one group being given penicillin orally and the other penicillin intramuscularly. On admission they were allocated alternately to the two groups. The patients who received the penicillin intramuscularly were given an initial dose of 50,000 units, after which successive doses of 20,000 units were administered at intervals of four hours for five days. Occasional patients with severe infection received higher dosage in the early stages of treatment. The mean total dose of penicillin was 800,000 units. In the oral administration of penicillin tablets of calcium penicillin with 0.5 Gm. of sodium citrate were used, which contained 20,000 or 25,000 units of penicillin. The standard dose was 60,000 units at intervals of three hours, at least during the early stage of treatment. Administration was continued for five days. The mean total dose given orally was 1,650,000 units. Two measures were adopted in an endeavor to enhance absorption and to maintain effective levels of the drug in the blood: first, the tablets were always administered along with a small amount (1 to 2 ounces, 28 to 56 cc.) of milk; second, the daily fluid intake was reduced to 2 pints (946 cc.). The results indicate that the oral administration of penicillin is a satisfactory method of treatment for pneumonia. Experience would suggest that treatment should start with a daily oral dosage equal to four times that required by the intramuscular route. After obvious clinical improvement (usually within forty-eight to seventy-two hours) this dose may be reduced by half. The authors emphasize that the indications for penicillin therapy are not changed by the present report. The sulfonamide compounds constitute an adequate method of treatment for the majority of patients; but for those who require penicillin there may be some advantage in the use of the oral route. The difficulties associated with continued injections are overcome, and treatment of pneumonia with penicillin in the home becomes practicable.

The Dangers of Going to Bed.—Asher stresses that the physician should think twice before ordering his patient to bed. He shows that rest in bed involves dangers to the respiratory system, blood vessels, skin, muscles and joints, bones, renal and alimentary tracts and nervous system. The author also directs attention to the demoralizing effects of staying in bed but admits that there is much comfort and healing in rest and that rest in bed is essential in many illnesses. His chief object was to disclose the evils of excessive rest, and he indicates how some of them can be avoided or overcome. He comments on the favorable effects of early rising after operations. He thinks that one way to avoid the dangers of bed lies in altering the equipment and arrangement of a ward. There should be a day room attached to every ward and lockers for patients' ordinary clothes. Too often patients stay in bed because, shuffling around in slippers and dressing gown, they are cold and uncomfortable. More liberal attention should be paid to breathing exercises, moving the limbs, and occupational therapy.

Journal of Tropical Medicine and Hygiene, London

50:211-232 (Nov.) 1947

Clinical Features, Diagnosis, and Treatment of Sprue. H. H. A. Elder. —p. 212.
The Malaria Patient and Quinine. C. W. F. Winckel.—p. 219.

50:233-254 (Dec.) 1947

The Manson Tradition. P. Manson-Bahr.—p. 238.
Tropical Ulcer, as Seen in South Iran, and Its Treatment with Penicillin. J. M. Pinkerton.—p. 243.

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Semaine des Hôpitaux de Paris

23:2847-2892 (Dec. 21) 1947. **Partial Index**

Osteoarticular Nanism. L. Denoyelle and J. Brée.—p. 2847.
Neurovegetative Exploration by Determination of Cholinesterase. E. Aron.—p. 2848.
Osteochondritis of Hip or Coxa Plana. J. J. Lieffring and B. Roy. —p. 2852.
*Four Cases of Infectious Endocarditis Treated with Penicillin. G. Desbuquois and P. Binet.—p. 2856.
*Autohemic Therapy and Penicillin in Treatment of Phlebitis. J. Hussenstein.—p. 2861.

Penicillin in Infectious Endocarditis.—Desbuquois and Binet treated 4 patients, 2 women aged 32 and 25, a girl aged 13 years and a man aged 64, with infectious endocarditis lenta with penicillin. In all patients several hemocultures were positive for green-producing streptococci. The patients had recurrent attacks of fever, and the general condition grew rapidly worse. Two had mitral valvulitis, the third had a congenital pulmonary stricture and the fourth had atheromatous aortitis with aortic insufficiency. In the first three patients complete recovery resulted from daily doses of 400,000 to 1,500,000 units of penicillin given for ten days to six weeks with total doses of 4,000,000 to 45,000,000 units. Drop in temperature of the three patients occurred on the tenth, twentieth and twelfth day of treatment, respectively, and was associated with considerable improvement of their general condition. Two patients presented symptoms of nephritis with albuminuria and azotemia which disappeared simultaneously with the symptoms of infection. There were two recurrences of the infectious syndrome in case 2; they may be prevented by prolonged treatment with massive doses of penicillin. Two of the patients presented a splenic embolism on the sixteenth and on the tenth day of treatment. It seems that embolism occurs more frequently in patients treated with penicillin. The drug had a favorable influence on the cardiac condition of the first 3 patients, but the fourth patient with atheromatous aortitis died on the twenty-sixth day after penicillin therapy was started; death resulted from a myocardial infarct. Recovery of young patients with infectious endocarditis may be obtained with massive doses of penicillin administered for sufficiently long periods in spite of occasional recurrences. The prognosis is less favorable in patients with a senile heart whose myocardium is deficient.

Autohemic Therapy and Penicillin in Phlebitis.—Hussenstein treated with autohemic therapy 4 women between the ages of 41 and 64 who were operated on for gastric ulcer, Pott's disease, generalized peritonitis resulting from pyosalpinx and neoplasm of the breast, and who presented premonitory symptoms of phlebitis or apparent postoperative phlebitis. Preventive treatment consisted of intramuscular injections of 20 cc. of blood on three consecutive days followed by injections of 20 cc. of blood every second day for ten days. In patients with apparent phlebitis 20 cc. of blood were administered on six consecutive days, after which injections were continued every second day until the edema disappeared. The occurrence of edema of the lower limb was prevented in patients who after the operation had pain in the groin or calf associated with rise of temperature and acceleration of pulse. Systematic use of autohemic therapy during the days after the operative intervention may prevent the appearance of phlebitis. In those instances in which autohemic therapy is instituted after the appearance of premonitory symptoms the phlebitis seems to have a benign and a shorter course, although it may be complicated occasionally by small embolisms. It is suggested that autohemic therapy may have an effect on the fluidity of the blood and on the coagulation time in addition to its desensitizing effect on the changes in the wall of the vein. One woman aged 25, in whom pelvic thrombophlebitis occurred two months after a normal delivery, was treated with penicillin; 600,000 units were administered on the first day, 400,000 on the second day followed by daily doses of 200,000 units until a total of 2,000,000 units were given. Complete recovery resulted from this treatment. One woman aged 45 who was operated on for subhepatic appendicitis with perivisceritis presented severe symptoms of phlebitis with temperature of 103 F. (39.5 C.) on the twenty-seventh postoperative day. Autohemic therapy was instituted and combined with penicillin; within seven days the patient was given 1,200,000 units of penicillin. Temperature was restored to normal by lysis and the edema slowly disappeared. A small embolism occurred on the twenty-second day of the phlebitis. Combined autohemic and penicillin therapy is indicated in cases of puerperal phlebitis and postoperative thrombophlebitis after gangrenous appendicitis, peritonitis or suppurative adnexitis. Autohemic therapy and penicillin treatment should be practiced along with the classic methods of treatment of phlebitis, i. e., early rising, anticoagulants and infiltration of lumbar ganglions with procaine hydrochloride.

Acta Psychiatrica et Neurologica, Copenhagen

22:1-152 (No. 1 and 2) 1947. **Partial Index**

*Localization of Intracranial Tumors by Electroencephalography. F. Buchthal and E. Busch.—p. 9.
Intrasternal Injection of Dextrose in Wakening of Patients from Insulin Coma. J. B. Dalgaard.—p. 17.
Significance of Cortical Vasomotor Centers for Circulation. A. Lund. —p. 41.
Dietetic Therapeutic Measures in Treatment of Schizophrenia. H. Löfvendahl and W. Arnoldi.—p. 57.
*Intracranial Teratomas and Teratoid Tumors. R. Müller and G. Wohlfart.—p. 69.
Gold Intoxication of Nervous Elements on Permeability of Blood-Brain-Barrier. A. Querido.—p. 97.

Electroencephalography in Intracranial Tumors.—The material investigated by Buchthal and Busch comprises patients with surgically and pathologically verified cortical and subcortical tumors. Potential differences were led off from the intact skull with unipolar leads (the ear being used as reference electrode) and with bipolar leads, sixteen electrodes being distributed over the skull. For registration a three channel ink-writing electroencephalograph with differential amplifiers was used. In 60 verified intracranial tumors electroencephalography with unipolar leads indicated the affected hemisphere in 72 per cent, while 10 per cent were wrongly localized and 18 per cent could not be localized as to hemisphere. With bipolar leads reversal of phase was found corresponding to the tumor in 51 per cent, while low frequency potentials were found over the tumor in 73 per cent. The authors believe that the fact that they obtained better results than did Cobb in 1944 may be due to a difference in technical facilities, since Cobb only had a two channel recording device at his disposal.

Intracranial Teratomas.—According to Müller and Wohlfart the literature contains reports of 85 cases of intracranial teratomas and teratoids. The authors report 8 additional cases. Of these tumors, 5 were situated in the region of the pineal gland, 1 in the third ventricle, 1 in a suprasellar location and 1 in the cerebellum. The course was acute and rapidly progressive in every case. The patients had the symptoms from some weeks up to eight months prior to entry. In every case papilledema and other signs of increased intracranial pressure were present. The local symptoms were primarily vertical conjugated ocular paralysis and widened pupils not reacting to light. The pineal teratomas and teratoids occurred in a girl aged 7 years, in 1 boy aged 8 years, 1 aged 15 and in 2 youths aged 17. Teratomas and teratoids of the pineal gland as described in the literature have mainly occurred in young males. On histologic examination the rapid progression of the tumor could be explained as due to either malignant degeneration of part of the tumor or abundance of embryonic tissue. Oligodendroglioma can apparently develop from intracranial teratomas or teratoids. The authors suggest that cholesteatomas are related to teratomas.

American Review of Soviet Medicine, New York

5:1-96 (Dec.) (1947 (Jan.) 1948

Skoraya Pomoshch: Moscow Emergency Medical Aid System. W. P. Forrest.—p. 9.
Assimilation of Carbon by Saprophytes. A. F. Lebedev.—p. 15.
Specific Action of Optical Isomeres of Mepacrine on Dextral and Sinistral Strains of Bacillus Mycoides Flügge. V. V. Alpatov and O. K. Nastyukova.—p. 28.
Psychologic Disturbances in Children During War. G. E. Sukhareva. —p. 32.
Treatment of Neuroses Associated with Trauma of Brain. A. S. Bonzunova.—p. 37.
General Nonspecific Resistance to Infection. V. I. Ioffe.—p. 41.
Gastrointestinal Reflex in Caisson Disturbances During Rapid Rise to High Altitudes. D. I. Ivanov.—p. 49.
Latent Pulmonary Fibrosis. I. G. Popkov.—p. 52.
Treatment of Gunshot Empyema of Pleural Cavity. N. V. Antelava. —p. 55.
Treatment of Trophic Ulcers. D. E. Alpern and A. Z. Tseitlin.—p. 58.
Occult Injuries to Heart. A. Y. Gubergrits.—p. 61.

Arquivos de Clínica, Rio de Janeiro

5:151-236 (Sept.) 1947. **Partial Index**

*Constricting Chronic Pericarditis. Recovery After Partial Pericardiectomy in Case. A. Paulino Jr. and F. Arduino.—p. 205.

Constricting Chronic Pericarditis.—Paulino and Arduino report a case of chronic constrictive pericarditis treated by partial pericardiectomy. The disappearance of the ascites and venous congestion and improvement of the roentgenologic, kymographic, electrocardiographic and capillaroscopic changes were such as to warrant considering the patient cured clinically. At present, six months after the operation, the patient has resumed work.

Klinische Wochenschrift, Heidelberg

24/25:769-800 (Oct. 1) 1947. **Partial Index**

Circulatory-Dynamic Study of Problem of Genesis of Hypertension in Acute Nephritis, Particularly in Field Nephritis. E. Lepeschkin and W. Pilgerstorfer.—p. 774.

Inotropic Effect of Nerves of Heart. E. Bauereisen and H. Reichel.—p. 785.

*Direct Serologic Demonstration of Heterozygotia in Blood Groups A and B: Preliminary Report. P. Dahr.—p. 791.

Heterozygotia in Blood Groups A and B.—According to Wahr, the immediate determination of the hereditary character of the blood groups of persons whose blood is classified in the A and B groups by means of serologic examination is of great practical importance for the clarification of disputed descent in cases of affiliation. Results of previous experiments suggested that in heterozygotes (in AO persons and in BO persons) the direct serologic determination of the O property originating from the O anlage may be possible by means of agglutination examination with anti-O serums. Since any anti-O animal serum may contain other unknown antibodies, the examination of blood samples of known genotype by means of a hypothetic group-specific anti-O agglutinin may be performed only with a purified anti-O solution. Samples of bovine, equine or swine blood may be used for the production of anti-O serums, but only anti-O serum which retains a pronounced anti-O effect even on repeated saturation with A_2B blood will be useful. A method for the preparation of a purified solution of an anti-O serum of this type is described. A_1 and B blood corpuscles of known genotype were examined with the purified agglutinin solution and O, respectively. AB blood corpuscles (A_1B or A_2B, i. e., blood without O anlage) were always carried with as positive and negative controls. The bottle containing the anti-O serum broke before the experiments were terminated, and consequently the results may be considered only as preliminary. All O blood samples (genotype OO) which were used as positive controls gave positive reactions; all AB blood samples (A_1B and A_2B) without O anlage, serving as negative controls, gave negative reactions; all B blood samples of genotype BO gave positive reactions; all A_2 blood samples of genotype A_2O gave positive reactions. A_1 blood samples of genotype A_1O gave partly positive and partly negative reactions. A definite diagnosis of heterozygotia can be made only in case of a positive reaction with the group-specific anti-O, while with a negative reaction it remains an open question whether there is heterozygotia or homozygotia.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:3425-3504 (Nov. 29) 1947

*Epidemic of Typhoid in Netherlands Troop After Arrival in Tropics. D. K. Wielenga and G. Bras.—p. 3474.

Case of Filariasis Bancrofti. P. Kooy.—p. 3481.

Typhoid in Troops After Arrival in the Tropics.—Wielenga and Bras describe an epidemic of typhoid which broke out among troops after their arrival in Java. A total of 80 cases occurred, of which 12 terminated in death. Postmortem examinations were made in 10 instances. Death was often caused by toxemia in the early stage of the disease. Hemorrhages were seen twice; in 1 patient a perforation developed at the hepatic flexure. The clinical picture was sometimes confusing because diarrhea of a dysenteric character existed, although neither dysentery bacilli nor Entameba histolytica were ever found. However, the possibility of a secondary infection was considered, and sulfaguanidine was administered in all cases of diarrhea with favorable results. To counteract the effect of toxins, transfusions of convalescent blood were given. A patient cannot be declared free from bacteria unless bile from the gallbladder has been examined and has proved sterile. Three bile carriers were successfully treated by duodenal intubation with magnesium sulfate solution; four urinary carriers were treated either with mandelic acid or by rendering the urine alternately alkaline and acid. The author stresses that prophylaxis against typhoid should be done with vaccines prepared from strains occurring in the locality to be visited.

Rev. Belge de Path. et de Méd. Expér. Brussels

18:1-100 (Feb.) 1947

*Gastric Ulcer: II. Pathologic Histology of Chronic Gastric Ulcer in Man. H. Betz.—p. 3.

Voluntary Apnea Time of Healthy Subject in Various Experimental Conditions. M. J. André and V. Boxus.—p. 42.

*Variations in Density of Arterial Blood and Its Hemaglobin Content in Course of Water Diuresis in Man. P. Govaerts and A. Verniory.—p. 78.

Contribution to Immunobiologic Study of Animal Fats. R. Derom.—p. 90.

Histologic Study of Chronic Gastric Ulcer.—Betz subjected to microscopic study specimens taken from the area of chronic gastric ulcers either in the course of resection or necropsy. He found fibrinoid necrosis in the intima of the arteries and in the connective tissue, often at a distance from the ulcer. Small hemorrhagic foci and edematous areas are often found near the ulcer. The occasional detection of signs of repair of the mucosa near the ulceration suggests that not all erosions become chronic. The intima of the arteries near the subserous tissue shows proliferation with differentiation of new muscular and elastic fibers. In over 38 per cent of the patients with chronic ulceration of the gastrointestinal tract who came to necropsy there existed disturbances in the general or portal circulation, which may have had repercussions on the gastric circulation. On the basis of these observations the author believes that neither emboli nor arteriosclerosis play a role in the pathogenesis of ulcer. Arterial occlusion is a consequence of local circulatory disturbances and not of arterial inflammation. It is not the cause of the ulceration. An allergic origin of the ulcer is possible but cannot be demonstrated by microscopic methods alone. If this hypothesis is correct, the circulatory disturbances would play their part only in the localization of the allergic reaction.

Changes in Arterial Blood During Water Diuresis.—Govaerts and Verniory studied the density of whole arterial blood and of its plasma in 30 persons by means of the Lindström-Lang technic. The hemoglobin content of the same specimens was determined with the Pulfrich photometer. About one hour after the ingestion of 1 liter of water, the density of blood decreases about 2.5 per cent, that of plasma 3.5 per cent. The hemoglobin content decreases by about the same percentage as does the density of the whole blood (an average of 2.73 per cent). If one wishes to express the dilution of blood in terms of increase in volume only hypotheses are possible. The first idea which comes to mind is that if the blood is diluted by water without losing or gaining protein or red cells, then 100 cc. of arterial blood should contain 2.61 cc. of excess water, distributed one fourth in the red cells and three fourths in the plasma. But although this concept is in perfect agreement with the observed changes, to prove it by direct observation would, for instance, entail demonstrating that the volume of the erythrocytes increased by 1.39 per cent. It is hardly possible to measure such a change by available methods. Other hypotheses might be suggested concerning the mechanism of blood dilution. One might assume that the fluid entering the blood is not pure water but a solution of salts and proteins, or one might postulate a removal of red cells from the blood after ingestion of water. Such hypotheses are not incompatible with the experimental results. However, they seem to be less probable than the first one and are not easier to prove by direct observation.

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Book Notices

The Dispensatory of the United States of America. By Arthur Osol, Ph.G., M.S., Ph.D., Professor of Chemistry and Director of the Department of Chemistry, Philadelphia College of Pharmacy and Science, Philadelphia, George E. Farrar, Jr., M.D., F.A.C.P., Associate Professor of Medicine, School of Medicine, Temple University, Philadelphia, and others. Advisory Editor: Horatio C. Wood, Jr., M.D., Ph.M., Professor of Pharmacology, Philadelphia College of Pharmacy and Science, Philadelphia. Based on the Thirteenth Revision of the United States Pharmacopoeia, the National Formulary, Eighth Edition, and the British Pharmacopoeia 1932 and Its Addenda. Twenty-Fourth edition. Cloth. Price, $16.50. Pp. 1928. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

The Dispensatory of the United States of America is well known. Now in its twenty-fourth edition, U. S. D., as it is popularly known, provides a unique comprehensive review of the drugs recognized by the United States Pharmacopeia, the Pharmacopeia of Great Britian and the National Formulary, and of drugs that are not official in these books. It also offers information on general tests, processes, reagents and solutions, veterinary uses and doses of drugs, various tables that are found in the United States Pharmacopeia and National Formulary and other pertinent information. The first edition appeared one hundred and fifteen years ago and probably has been used more by the pharmacist than the physician. However, even though some may disagree with some of the statements of possible uses, the book has so much value that it can provide a real help to the medical practitioner as well as the teacher. Individual monographs are arranged alphabetically and provide information on official titles, synonyms and abbreviations, official definitions, unofficial synonyms, foreign language titles, trade names and trademarks, source of manufacturing process and its history, official descriptions including tests, assay methods, constituents, adulterants, therapeutic uses, toxicology, dosage, storage directions and official preparations. The format is agreeable for the average reader, and the style of writing and manner of treatment should be generally acceptable. The book should find its way into the libraries of those who insist on having adequate sources of references.

A Century of Service. Rochester General Hospital, 1847-1947. Written for the Hospital in Celebration of its One Hundredth Anniversary by Virginia Jeffrey Smith, Together with Chapters on the Medical Staff by Charles R. Witherspoon, M.D., Stearns S. Bullen, M.D., and William A. MacVay, M.D. Boards and Fabrikoid. Pp. 227, with illustrations. Rochester, N. Y., 1947.

Beautifully printed and designed for public interest as well as for reference as a historical document is this review of a great American institution, the Rochester General Hospital. It came into existence following the depression of 1837 and it grew out of a female charitable society. It added a school of nursing and the other functions that hospitals have added in modern times. The story is told simply and directly with many illustrations, and the book might well serve as a model for other volumes dealing with similar institutions. Since the hospital was always conducted efficiently and economically, the record of its growth and development is also a guide to modern hospital administration.

Cornell Conferences on Therapy. Volume Two. Edited by Harry Gold, M.D., Managing Editor, and others. Cloth. Price, $3.75. Pp. 384. The Macmillan Co., 60 Fifth Ave., New York 11, 1947.

By now Cornell Conferences on Therapy have become familiar to students and teachers. The series was begun in 1937 and for several years was published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Volume I was so successful that a second printing was necessary within a few months after its publication. Volume II, which comprises a series of sixteen conferences, should be equally successful as it will be of interest to the intern, resident, practitioner, and teacher. There were almost forty participants in the conferences, which include discussions of the use of placebos in therapy, treatment of poliomyelitis, treatment of meningitis, treatment of syphilis, treatment of rheumatic fever, oral penicillin, choice of sympathomimetic amines, management of gallbladder disease, principles of treatment of edema and dehydration, uses and abuses of quinidine, treatment of coronary artery disease, treatment of some tropical diseases, surgical treatment of hypertension and the evaluation of local antisepsis. Those who have participated in these conferences are well known in the fields in which they work, and authenticity is given to this book by the association of their names.

Essentials of Pharmacology. By Frances K. Oldham, M.Sc., Ph.D., Research Associate in Pharmacology, the University of Chicago, Chicago, F. E. Kelsey, Ph.D., Associate Professor of Pharmacology, the University of Chicago, and E. M. K. Geiling, Ph.D., M.D., Frank P. Hixon, Distinguished Service Professor and Chairman of the Department of Pharmacology, the University of Chicago. Fabrikoid. Price, $5. Pp. 440, with illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This is intended to serve as an introductory textbook on pharmacology. It does not contain detailed information for the advanced student, and the authors have wisely omitted lengthy discussions of articles seldom used in modern therapy. The book is up to date and conforms to the products listed in the latest editions of the official compendiums, N. N. R. and other recognized volumes. Included in the discussions are the functional drugs and chemotherapeutic agents, but one of the most interesting sections of the book is related to general principles, in which are statements on historical development of pharmacology, general principles of pharmacology, control and dispensing of drugs and administration of drugs. Brevity is an outstanding feature of the book, and yet this does not lessen its usefulness.

Practical Difficulties in Pharmaceutical Preparations. Collected from the Notes Left by Late Mr. Avadhut K. Pradhan, B.Pharm., Ph.C. Compiled by Dr. K. N. Pradhan, L.M. & S. Avadhut Memorial Series No. 1. Paper. Price, 2 rupees. Pp. 12. Published by R. T. Deshmukh, at Saraswati Press, Nagpur, for Late Avadhut Memorial Trust, Avadhut Bhuvan, Nagpur, 1947.

This is a brief collection of notes left by a young man, a pharmacist, who was beaten and killed, and whose body disappeared in Calcutta, India.

Formulary, University Hospital, Ann Arbor, Mich. Second edition. Cloth. Price, $3.75. Pp. 422, with illustrations. University of Michigan, University Hospital, Ann Arbor, 1947.

The development of hospital formularies has assumed an important place in hospital life. Some have been so well received that the reception has extended beyond the walls of the hospitals for which they were originally intended. This formulary, prepared by the University Hospital, Ann Arbor, Mich., is such a publication. The first edition appeared in 1946, the second in August 1947. So many developments have occurred that it was necessary to add new sections, including discussions on amino acids, the newer analgesics, antihistaminics and other drugs that have now gained either general recognition or are being widely used for clinical research. Each drug is identified as to whether it is U. S. P., N. F. or N. N. R., although some appear that are not in any of these books. In addition to the descriptions there are statements of dosage. Wisely, the writers of the volume have seen fit to omit detailed descriptions of actions and uses. This is a creditable attempt to provide a useful formulary for the hospital staff.

Le pouvoir antiprotéolytique du sérum sanguin chez la femme. Par Roger Le Breton, Docteur en médecine. Paper. Pp. 103, with 4 illustrations. Imprimerie M. Declume, Lons-Le-Saunier, 1946.

The author has developed a new, simple technic for the determination of the antiproteolytic power of blood serum. Experimental conditions such as the quality of the materials used and the temperature and duration of the reaction were strictly controlled. He measured antiproteolytic power in terms of the inhibitory action of 1 cc. of serum, as determined by the percentage of fibrin remaining unchanged during digestion with a proteolytic ferment. Proteolytic power was measured by the percentage increase of the fibrin broken down under the same conditions.

The method enabled the author to gather evidence in the female of a hitherto unknown proteolytic power of certain blood serums, but most of his data concern the antiproteolytic power of the blood serum in various obstetric and gynecologic con-

ditions. Four hundred and sixteen observations were carried out in 314 female patients, of whom 168 were pregnant. More often than not, only one determination was done in each patient. He found a diminution of the antiproteolytic power in patients showing (1) death of the fetus in utero, (2) habitual abortion, (3) the menopause. An increase was found in (1) pregnancy, (2) the immediate period following castration, (3) gynecologic infections and (4) during autohemotherapy combined with sulfarsphenamine in patients treated successfully for habitual abortion. There was a transition from antiproteolytic to proteolytic power in metrorrhagia and occasionally in the menopause. Although he found an analogy between the curves of evolution of antiproteolytic power and that of follieulinemia in the course of gestation, this was not the case during the menstrual cycle. The increase in antiproteolytic power provoked by infections points to a defense reaction, not necessarily an estrogenic mechanism. Because of this increase, it is imperative that every patient have a physical examination and white blood cell count in order to rule out an infection.

The author claims that the determination of the antiproteolytic power of the blood serum offers a diagnostic procedure in pregnancy and a method of control of the treatment of habitual abortion by autohemotherapy combined with sulfarsphenamine.

Biological Actions of Sex Hormones. By Harold Burrows, C.B.E., Ph.D., F.R.C.S. Cloth. Price, $8.50; 42s. Pp. 514, with 7 illustrations. New York: The Macmillan Company; London: Cambridge University Press, 1945.

This is a well coordinated summary of developments in our knowledge of the sex hormones derived from the study of the pituitary, gonads and adrenals in animals. It shows an appreciation of the varying factors which must be taken into account when discussing any reaction. For example, in Part I, on the subject of gonadotropins, there is a chapter devoted to factors which influence the gonadotropic activity of the pituitary, another on factors which influence the reaction of the gonads to gonadotropins and another on factors which affect the cytologic structure and weight of the anterior lobe of the pituitary. The section on androgens has a chapter dealing with the action of these hormones on the reproductive system before complete differentiation and another chapter on their action after complete differentiation. The section on estrogens is treated in the same manner. The author states that his leading motive is the ultimate possibility of applying the experience gained from the laboratory for the benefit of man. In general, he wisely refrains from a direct attempt to do so in this book, perhaps realizing that conclusions based on animal experiments cannot always be applied to man without considerable modification. An appendix gives synonyms for the biologic products used, and a glossary explains some of the technical terms. There is both an author and a subject index.

The Premature Baby. By V. Mary Crosse, M.D., D.P.H., M.M.S.A., Chief Obstetric Officer in Charge of City of Birmingham Maternity Homes and Premature Baby Unit, Birmingham, England. With foreword by Leonard G. Parsons, M.D., F.R.C.P., F.R.C.O.G., Professor of Children's Diseases, University of Birmingham. [Reprint] Fabrikoid. Price, $3. Pp. 156, with 14 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1946.

Dr. Mary Crosse, the author, is chief obstetric health officer in charge of maternity homes and the premature baby unit of the city of Birmingham, England. Fourteen years ago she commenced an attack directed toward the reduction of mortality among premature babies. Her work was so encouraging that English physicians, who watched her, often wished that she would describe her methods, so that others might profit by them and follow her example. This book is the result. According to the English pediatrician Dr. Leonard G. Parsons, her experience and results in this field have been unrivalled in that country. According to him the book is unique in British literature.

The book is divided into eight chapters, an appendix and an index. The chapters deal with characteristics of premature infants, general scheme of management and care, institutional care, home care, clothing, methods of feeding, complications that occur in premature babies and various tables and statistics relating to the premature baby in England. There are fourteen illustrations, most of which are photographs illustrating various technics, i. e., weighing, bathing, feeding, administration of oxygen, ultraviolet radiation and the like.

This book is, according to American standards, more in the nature of a compend or outline and is generalized more than detailed. A special feature is the teaching of simple methods; methods that any English midwife could employ when called on to nurse a premature baby in its own home. English physicians visiting this country have stated that Dr. Crosse and her book have done much to acquaint the English physician in the care of premature infants and to bring about a resulting reduction of mortality.

However, the book would not be suitable for teaching of American physicians, because books and articles available to the American physician are more detailed in the employment of technical procedures used in this country. For example, Dr. Crosse pictures a heated uncovered transport basket, whereas in larger cities here an enclosed transportable incubator is frequently used; oxygen is administered by face mask rather than by the tent, hood or enclosed incubator more commonly used here. Intravenous therapy is not stressed because of the lack of trained personnel.

This is distinctly an English book for the British general practitioner and as such has served a useful purpose in the British Isles.

Office Endocrinology. By Robert B. Greenblatt, B.A., M.D., C.M., Professor of Endocrinology, University of Georgia School of Medicine, Augusta, Georgia. With a foreword by G. Lombard Kelly, M.D., Dean, University of Georgia School of Medicine, Augusta. Third edition. Cloth. Price, $4.75. Pp. 303, with illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

This book claims to give the practicing physician the latest practical, reliable facts about endocrinology, simply and definitely; yet almost all of the volume is devoted to "female endocrinology." There is a brief section on "male endocrinology." Another brief section on "hormonology" and a five page introduction on "regulatory mechanisms" cover the rest of the endocrine system. The section on hormonology merely describes the actions of the estrogens, progesterone, androgens and the adrenal cortical, thyroid and pituitary hormones. Thus, there are no clinical data on any endocrine glands other than the gonads. The pancreas and parathyroids are not mentioned in the section on hormonology. "Female endocrinology," which occupies most of the book, is a condensed outline containing many practical points in diagnosis and treatment. Some of the recommendations seem a little optimistic. Hormone nomenclature is well covered in the section on hormonology.

Solutions and Dosage. By Sara Jamison, R.N. Cloth. Price, $2.50. Pp. 295, with 62 illustrations. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, 1947.

An understanding of simple arithmetic, through "percentage" and "ratio and proportion," is essential to the accurate preparation and administration of drugs. This textbook provides a clear presentation of simple mathematical relations, explained in terms of both the apothecary and metric systems of units. It contains chapters on arithmetic review, on the preparation of solutions and on dosage, with many exercises and experiments designed to develop facility in accurate calculation. The problems deal with drugs used in modern therapy. This book should prove useful to student nurses, pharmacy students and physicians who wish to review simple arithmetic.

Diseases of the Nervous System Described for Practitioners and Students. By F. M. R. Walshe, M.D., D.Sc., F.R.C.P., Physician in Charge of the Neurological Department, University College Hospital, London. Fifth edition. Cloth. Price, $4.50. Pp. 351, with 59 illustrations. Williams & Wilkins Co., Mount Royal & Guilford Aves., Baltimore 2, 1947.

This is a most practical and useful book. The author writes from a standpoint of physiology and anatomy and therefore does not force the student or practitioner to memorize individual symptoms of each nervous disease. This format and this method of describing neurologic diseases are well adapted to a book of

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this type. The twenty-nine chapters are divided into two parts. Part I takes up the general principles of neurologic diagnosis. Part II gives a descriptive account of the commoner diseases of the nervous system. This book is written for the student and the general practitioner, but it should be in the hands of all medical men—practitioners as well as specialists.

The Diagnosis and Treatment of Diarrheal Diseases. By William Z. Fradkin, A.B., M.D., Assistant Attending Gastroenterologist, Jewish Hospital of Brooklyn, N. Y. Cloth. Price, $6. Pp. 254, with 114 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1947.

This short manual covers thoroughly the diarrheal diseases from clinical, laboratory and public health aspects. In addition, the introductory chapters discuss related anatomy, physiology, bacteriology, pathology and diagnostic procedures and technics.

There is unquestionably a wealth of material in this manuscript, but the method of presentation leaves the reader wondering why so much space is wasted in description of simple laboratory procedures and methods of physical diagnosis and so little time spent in interpretation of results. By the same token, therapeutics is described in general terms. The practitioner who wishes to use this for reference will find complete lists of suggested treatments but little discussion of their indications.

This oversimplification on one hand and painful detail on the other suggests that the manual be recommended for study by medical students and young practitioners. It will not be found of great value by experienced gastroenterologists.

Dying, Apparent-Death and Resuscitation. By S. Jellinek, M.D., Professor of Electropathology at the University of Vienna, Vienna. Cloth. Price, $3.50. Pp. 263. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The author of this book spent his lifetime collecting data and making notes on this subject. Some of the material is interesting, but a large part is irrelevant. The author calls "The practice of lifesaving today—a dismal medical wilderness." Knowledge of resuscitation should be a requirement for the practice of medicine. Dr. Jellinek attempted to formulate a program for resuscitation. He is professor of electropathology at the University of Vienna, where they have "a pathologic museum which is practically a department of life saving."

The first paragraph of the first chapter indicates the author's style and presentation: "It is in itself a strange contradiction that some learned doctors of strict integrity do not hesitate to pronounce categorically that there is in reality no such thing as 'apparent-death,' whilst others of no less esteem make testamentary depositions that the heart-incision shall be performed on them; but this contradiction reveals the darker side of the problem which has tormented mankind throughout the ages. Neither the attitude of the opponents of the 'apparent-death' theory nor that of its adherents can stand up to critical examination. The former unscrupulously disregard every argument and simply deny the existence of apparent-death and its concept, the latter believe in apparent-death but bring discredit on the idea. The opponents press their arbitrary dogmatism (in support of which they are unable to advance a single argument from the field of objective knowledge) to the point of saying that even babies born in a state of asphyxia should be regarded as dying or stillborn, forgetting in their ardor (not to call it fanaticism) that even the object of contention, i. e., the alleged seemingly-dead person, has the right to be heard and justly treated."

The second chapter, on "Fables and Facts," starts off with this sentence: "Myths, sagas and chronicles of all times show that those fundamental and inexorable phenomena of life, death and its shadow, apparent-death, have deeply troubled mankind throughout the ages."

The third chapter is on "Clinical Thanatology" and begins as follows: "Not only has life pulsating freshly in each one of us its own peculiar motif, its own rhythm; but the sonorous finale, death, has in each one of us its individual cadence."

There are 246 pages of material similar to the foregoing quotations. The book is a compilation of notes and observations largely of a metaphysical nature. This reviewer would not classify it as a textbook for students and practitioners of medicine.

The Medical Writings of Anonymus Londinensis. By W. H. S. Jones, Litt.D., F.B.A. Cloth. Price, $2.75. Pp. 168. Macmillan Co., 60 Fifth Ave., New York 11; Cambridge University Press, Bentley House, 200 Euston Road, London, N. W. 1, 1947.

This book is the author's translation of a Greek medical papyrus of the second century A. D., measuring 12 feet long, consisting of thirty-nine columns, each containing fifty to sixty lines about 3 inches long, with some mutilated and illegible parts. It is probably not a copy of an edition but is probably a copy by a young student of another copy, or rather a paraphrase of such by one and the same scribe—perhaps of lecture notes. No post-Aristotelian authority is mentioned, and it is probably of a Menonian origin.

After a short preface, followed by an introduction and "additional notes" and the bibliography, there follows the running text in Greek on the left side of the succeeding pages, with the corresponding English translation on the right sides of the pages.

The text begins with definitions of Greek words followed by the etiology of diseases, according to various authorities, and ends with the development of physiology after 300 B. C. (from Herophilus to Alexander Philalethes). The last section (on physiology) is quite the largest of the three. The book ends with a chapter on "The Nature of Greek Thought" and "The Nature of Greek Medicine," followed by one and one-half pages of an "Index of Notabilia."

This book is of little interest to the general practitioner of medicine. Even its arrangement is a bit disconcerting; except for the first four and one half pages of introduction, the "additional notes," chiefly of philologic interest to the Greek scholar, had better be put at the end of the text after the interested reader has discovered the detailed nature of the text. The translator's suggestion that the text is a paraphrased copy of lecture notes by a young student seems justified because of its repetitious parts and other "existing blemishes." Its physiologic section with its anatomic references is the most interesting to any student of the history of physiology. Of the latter it is stated that simple parts of man such as "brain, sinew, artery and vein are such because these can be cut up into like parts whereas compound parts such as legs, liver, head and lung are not homogeneous."

The original lecturer author was conversant with the fact that arteries contain blood and not breath (air). Of the foods ingested some may contain good and bad material on digestion; but the bad is excreted by the urine for the latter is "pungent and salt," which ends the physiology of the bladder; for even the sun, "being an intelligent ball of fire out of the sea, is nourished from the nutritious parts of the sea, taking in part what is fine, but leaving in the sea the more sluggish, the grosser and salt portion" (p. 117). On the basis of alleged facts, athletes are fed with warm loaves of bread and fresh meat because they are heavier than high meat and cooled loaves which, because they are light by nature, are less nutritious and have in cooling given off many emanations. Empirics oppose this view because they say "the addition of one thing to another does not necessarily make the latter heavier," for sometimes much addition makes the object lighter and sometimes the subtraction of a part of the object makes the object heavier; for a bladder filled with air is lighter than an empty bladder, or as when the soul leaves the body, the body becomes lighter (p. 131). Aside from the lack of suitable scales, the fallacy implied in the simple mathematical statement should have been apparent.

However, the didactic value in principle of these lecture notes lies in the fact that in the expositions of physiologic processes the authorities are cited for one view or the other. A discussion of diverse opinions with bibliography often is not presented even at this age by many so-called modern teachers of medical students. Here the ancient bibliography is present in the form of references to the views of Herophilus, Erasistratus, Plato, Hippocrates, Aristotle, Thrasymachus and so forth. To repeat: this book is of interest only to the medical historian and Greek philologist and not to the practitioner of medicine.

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Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

VAGINAL SMEARS FOR DIAGNOSIS OF CANCER

To the Editor:—Please describe a simple office procedure for taking vaginal smears for the early detection of cancer of the uterus.

Rudolph Joseph, M.D., Freeport, N. Y.

ANSWER.—The technic for preparing vaginal smears, as described by G. N. Papanicolaou and H. F. Traut (Diagnosis of Uterine Cancer by the Vaginal Smear, New York: The Commonwealth Fund, 1943) is as follows:

"A slightly curved glass pipet, 6 inches (15 cm.) in length, 0.5 cm. in diameter with a rounded tip and a small opening, and equipped with a strong rubber bulb for producing suction is used. The patient is placed on an examining table in the lithotomy position. The labia are separated and the rubber bulb compressed. The glass pipet is introduced into the posterior fornix of the vagina. The pressure on the bulb is then released and the suction produced serves to aspirate vaginal fluid with its cellular content into the glass tube. While aspiration is in progress, the tip of the tube is moved from one side of the fornix to the other so that all parts are sampled. The pipet is then withdrawn, and the vaginal material is spread on the surface of a clean microscope slide with a sudden expulsive pressure on the bulb. Further spreading with the convex side of the pipet is advisable when the amount of fluid is abundant, as in cases where there is considerable bleeding or abundant mucus. Very thick smears are not well penetrated by the fixing fluids and cannot be uniformly stained.

"The slides are immediately plunged into a solution of equal parts of 95 per cent alcohol and ether. Drying of the smears should be carefully avoided as it results in the loss of the sharp outlines of the cells, and in a change in their staining reaction. The fixation does not require more than a few minutes, but smears may be kept in the alcohol-ether solution over a long period of time. It is recommended that the slides not be kept in the fixative for more than a week or two as the cells slowly tend to lose their normal staining reaction. If ether is not available, plain alcohol (95 per cent) can be used. For shipping slides, a square bottle 1¾ by 1¾ by 4½ inches (4.5 by 4.5 by 11.4 cm.) may be used. Such a bottle may hold as many as seven or eight slides. An ordinary paper clip attached to each or every other one of the slides prevents the smears from rubbing against one another.

"A few precautions should be observed in the procurement of material for the vaginal smear. The vaginal contents should not have been disturbed by any form of examination or treatment. Douching or bathing will, of course, dilute or completely wash away the cellular deposits for a period of several hours. If there is a considerable amount of fluid of either serosal or sanguineous character, dilution will occur, in which case it is wise to make several smears to obtain the representative cell constituents which are ordinarily seen in a single smear."

ADENOIDECTOMY

To the Editor:—A child aged 3½ years has enlarged tonsils without evidence of gross infection but has occasional attacks of sore throat. A pediatrician suggests removal of adenoids and states that tonsils may improve as a result of the adenoidectomy. Is such a procedure preferable to the customary tonsillectomy and adenoidectomy? At what age and in what season are such operations best performed? Is preoperative administration of vitamin K and penicillin indicated in these cases?

R. V. Brokaw, M.D., Trenton, N. J.

ANSWER.—Because of a natural tendency to routinize procedures, both tonsils and adenoids are usually removed at the same time. There must be numerous occasions, however, when either the tonsils or adenoids alone should be removed.

In each case the determining factor should be the past history of the patient and the observations at previous examinations and at the time of operation. If the indication for operative removal of the tonsils is absent then they should not be removed.

This statement would be academic, however, if it did not take into account a number of facts. Assume that the child appears to need adenoidectomy only. In a year or so he will be of school age and will be in frequent contact with many other children at a time when they are all most susceptible to infections of the upper part of the respiratory tract. Neither the parents nor the physician would shortly like to be confronted with the need for another operation with its physical risks and psychic trauma.

The problem would be simpler if the child had never had trouble with his tonsils; it is more difficult if the past history is that of a few mild attacks. The next attack may or may not be soon and severe.

In the last analysis, then, at the time of adenoidectomy one would remove the tonsils described if it is believed that they have already or will shortly cause more disturbance. The history of the patient and the skill and judgment of the physician will be more helpful toward a solution than the present appearance of the tonsils.

Set age or optimum time for operations of this type is not established. They are to be carried out when sufficient indication for operation is present.

Borderline cases may be postponed and observed, and other measures such as radiation therapy considered, until operative removal becomes clearly the method of choice. No reason exists for believing that adenoidectomy alone will improve diseased tonsils.

This operation should not be done in the presence of a poliomyelitis epidemic or at the height of an ordinary seasonal rise in poliomyelitis.

In children who are allergic or who come from allergic families an operation at the height of the pollen seasons is not desirable.

A number of competent observers believe that neither vitamin K nor penicillin offer additional protection.

THROMBOPHLEBITIC ULCERATION

To the Editor:—I have a female patient, aged 42, who has four children. Questionable evidence of phlebitis occurred after the last delivery, which was eleven years ago. Seven years ago the patient had a pelvic operation, after which there developed deep phlebitis on the left side. Extensive eczema and ulceration of the lower part of the leg also developed. A high saphenous ligation and two flap operations have been performed with little, if any, improvement of her condition. With the history of phlebitis I doubt if satisfactory result will be obtained from attacking the superficial saphenous condition. She still has varicose veins, but undoubtedly these are due to a compensatory mechanism. What is the status of lumbar sympathectomy and the excision and grafting procedure? What is suggested in treatment of this condition?

John S. Reed, M.D., Kingsport, Tenn.

ANSWER.—The treatment of chronic recurrent, thrombophlebitic ulceration is admittedly difficult. Since the chronic venous stasis is brought about mostly through a reflux in the deep venous system, ligation of the saphenous vein at the groin is not apt to be of much help. However, this factor has to be studied in each case. Certainly injection into the saphenous collateral vessels in the presence of a thrombophlebitic induration and eczema will only result in more edema and lymphstasis. Ligation of the superficial femoral vein, if its patency can be ascertained, is more logical, since the recanalized, thickened valveless deep venous system is responsible for much of the venous stasis in the erect position. The selection of the proper type of patient for this operation requires a great deal of experience; the operation may do more harm than good if deep venous pressure is increased by the procedure.

Lumbar sympathectomy is useful but only in those patients who exhibit increased sweating, decreased pulsation and decreased skin temperatures in the affected extremity.

Wide excision of the ulceration, down to or including the deep fascia, followed by a split-thickness skin graft taken with a dermatome is the method of choice in most instances. This operation not only removes the indurated, inflamed tissue around the ulcer but interrupts the incompetent perforator veins and excises the strangled and inflamed peripheral nerve supply. It must be followed by many months' use of snug elastic support with glycerin-gelatin casts and later use of elastic hose.

RHEUMATIC HEART DISEASE

To the Editor:—A boy aged 5 years, who lived in St. Louis and who had a known functional heart murmur contracted a streptococcic tonsillitis and pharyngitis. Several days later mild scarlet fever developed. A mild rheumatic heart disease resulted. The child is convalescing from the rheumatic heart disease, and apparently there will be no residual cardiac involvement. He is now in Arizona recuperating. The problem arises as to the advisability of returning this boy to St. Louis during the winter months. Should he remain in central Arizona where the climate is warm and dry and where there is supposedly less tendency for rheumatic fever to occur?

M.D., Arizona.

ANSWER.—Clinical experience has shown that in mild and dry climates there is in general less streptococcic respiratory infection than in the colder, wet regions of the northern temperate zone. The chief hazard to a patient recovering from recent rheumatic fever is a recurrence or recrudescence of his disease, and streptococcic infection is the commonest precipitating factor. Hence, the patient would be less apt to have a recurrence in a climate such as Arizona than in St. Louis during the winter months.

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TRAUMATIC EPILEPSY

To the Editor:—A patient aged 20 had a fractured skull, grossly bloody spinal fluid and a Babinski reaction on the right side. One and one-half years after the injury to the skull, the patient commenced to have seizures that started with an outcry and spasm of the jaw muscles, first on the left side, followed by a short period of unconsciousness and clonic movements of both legs. Neurologic examination is now repeatedly negative. The electroencephalogram showed, "steady 10 per second; no focus; no seizure discharges; slight build-up with overventilation. A minor attack occurring during the record showed no change." In the light of this evidence can I make the following conclusions? 1. The history of a Babinski reaction on the right side and the start of the seizures on the left side of the face suggests a focus, very probably of traumatic origin. 2. The essentially normal electroencephalogram does not rule out focal epilepsy, so-called, but a positive tracing would be fairly conclusive evidence of the existence of focal epilepsy.

M.D., New Hampshire.

ANSWER.—The site of the fracture of the skull is not stated. The other evidence is contradictory, but probably the left-sided muscular spasm that initiates seizures is of more significance than the former right-sided Babinski reflex. The diagnosis of focal grand mal epilepsy is made by the description of the seizures. The normal electroencephalographic tracing does not alter this diagnosis, although the failure to record a seizure discharge during a seizure is peculiar. A record made during sleep should be more revealing. The possibility of a subdural hematoma is to be considered.

DILUTE HYDROCHLORIC ACID

To the Editor:—What is the rational of the use of dilute hydrochloric acid and a low salt diet in hypertension?

M.D., New York.

ANSWER.—Theoretically, dilute hydrochloric acid in combination with a low salt intake should tend to lower the sodium content of the body even more effectively than a low salt diet alone. The idea of low salt therapy for hypertensive disease is not new. Earliest studies along these lines were by the French (Achard, C., and Leoper, M.: *Compt. rend. Soc. de biol.* **53**:345, 1901; Widal and Lemierre: *Bull. et mém. Soc. méd. d. hôp. de Paris* **20**:785, 1903). Experimental studies with rats (Grollman, A., and others: *J. A. M. A.* **129**:533 [Oct. 20] 1945) indicate that radical reduction in sodium content reduces the blood pressure in experimentally induced renal hypertension. The rice diet advocated by Kempner (Kempner, W.: *North Carolina M. J.* **5**:125 [April] 1945; *ibid.* **5**:273 [July] 1944) is based on the concept that it supplies the minimum amount of sodium and is extremely low in protein, thus sparing the kidneys.

However, the clinical value of severe sodium restriction and depletion of sodium reserve in hypertensive disease is by no means fully demonstrated. Clinical improvement claimed by those advocating this method of therapy has not been confirmed with sufficiently extensive and well controlled studies elsewhere. For years the pendulum has swung back and forth; waves of enthusiasm for severe salt restriction have been followed by waves of skepticism and demonstration that such an unpalatable diet does not accomplish enough to warrant insistence on its continuance. Experimental renal hypertension finds its counterpart in only a relatively small percentage of cases of hypertensive disease in human beings. Hypertension is due to many causes; the etiologic factors are seldom identical in different patients. Anxiety plays an important role in many instances. It is notable that only those patients who are extremely apprehensive regarding their hypertension will follow the strict dietary regimen for any length of time and that such persons are particularly open to the psychogenic effects of faith and reassurance.

MENOPAUSE

To the Editor:—Please advise me regarding estrogen administration, which was discussed in *The Journal*, Nov. 8, 1947, page 680. A patient had an early menopause at 35 years of age: she has not menstruated for ten years (aged now 46). She still has hot feelings and flushes, and her skin is hot at night in bed. She gets relief with 5,000 units of theelin twice a month or every ten days but has been receiving it for ten years. Her mother aged 62, died three years ago with metastases to uterus and ovary following removal of a cancer of the breast fifteen years previously. Should this patient receive any more theelin? She is a high strung, emotional woman.

Frederick G. Wandall, M.D., Clayton, N. J.

ANSWER.—In treating menopausal symptoms, patients who have a personal or familial history of cancer of the accessory sex organs should not receive estrogenic therapy. This patient is apparently emotionally unstable, and perhaps there has been considerable psychic trauma due to the fact that her mother died from a dreaded cancer. Sedation and reassurance may be of value in the relief of some of her symptoms. The use of androgens has been recommended as benefiting patients in whom estrogens are contraindicated.

RIGHT-SIDED HEART FAILURE

To the Editor:—Please give an opinion on treatment of acute right-sided heart failure. I meet this condition occasionally in older patients with chronic emphysema associated with chronic bronchitis and/or bronchiectasis and in younger patients with mitral stenosis.

The former may have attacks of pain in the abdomen which mimic closely an acute condition of the upper part of the abdomen such as gallstones, or pain may occur at the lower end of the sternum, in which case it is apt to be misdiagnosed as a coronary attack. In the latter group pain is more often apt to be entirely abdominal. Rigidity of the upper part of the right rectus muscle may occur. The liver is sometimes excessively enlarged, either temporarily or permanently, or it may not be palpable. The veins of the neck are frequently distended.

My patients are usually taking digitalis and may be fully digitalized at the time of the attack. During the attack the pulse becomes of poor quality and the extremities become cold. Should such a patient be bled, even if he appears to be in shocklike state? Is acute right-sided heart failure always an indication for bleeding?

The method of treatment is partly the treatment of medical shock; e. g., treatment of "forward" heart failure in acute coronary thrombosis, in which the patient may die in a few hours. A better example is the circulatory failure of diphtheria. At a recent cardiac conference one cardiologist expressed the opinion that such a child should have been depleted with mercurial diuretics, although the child received 1,000 cc. of blood in divided doses.

Patients with mitral stenosis whom I have seen in acute attacks have had few or no basal chest rales.

What treatment is advised?

Samuel L. Immerman, M.D., Philadelphia.

ANSWER.—Engorgement of the liver with resulting pain and tenderness in the right upper quadrant is an early sign of failure of the right ventricle usually secondary to left ventricular failure with its attendant dyspnea or orthopnea but also found in cases of mitral stenosis, cor pulmonale, myocardial disease and strain acting diffusely on the whole heart, as in acute rheumatic pancarditis and acute tamponade of the heart by pericardial effusion. In the case of persistently recurrent or chronic hepatic congestion and enlargement one finds decreasing pain and tenderness in the right upper quadrant, although the liver may be enlarged to great dimensions.

The most important treatment of acute vascular congestion of the liver is combined therapy with digitalis, mercurial diuretics and low sodium intake. The use of venesection, or preferably blood pressure cuffs to the far extremities, in acute emergency is seldom needed if one seeks to obviate the possibilities of such a condition by prophylactic treatment. This problem in the case of acute right-sided or total cardiac failure is much less serious or common than that of acute pulmonary edema associated with failure of the left ventricle, but a similar dilemma exists as to the relative importance of venous congestion and a state of shock. Venesection would seem to be much less desirable than the cautious use of blood pressure cuffs; and conceivably even the introduction of fluid, preferably blood, in small amounts might help if such a rare emergency should supervene.

BILATERAL CONGENITAL CATARACTS

To the Editor:—Three weeks ago a boy with bilateral congenital cataracts was born. History of German measles during pregnancy is absent and no familial history of cataract occurs. Both parents are apparently in good health. Please discuss newest methods of treatment.

M.D., New York.

ANSWER.—There may be other noxious agents than German measles which produce bilateral congenital cataract, but as yet only heredity has been confirmed as a cause. Presence or absence of other congenital anomalies in the eye or eyes is naturally of great importance in prognosis. Many infants are operated on during the first year but most authorities prefer to wait until the child is 2 years of age. Secure the best possible result in one eye before the second is touched. Several operations may be needed. Select a competent ophthalmologist, one who has done a good many such operations in babies. The prognosis for vision is good.

SMALLPOX

To the Editor:—I have just treated a patient with smallpox by giving 50,000 units of penicillin intramuscularly every three hours. Penicillin did not seem to affect the eruption as it was taking place, but it did appear to have a profound effect in drying the eruptions and hastening the scaling stage. What are the reports of others using penicillin against smallpox?

Clifton F. West, M.D., Kinston, N. C.

ANSWER.—A report of an outbreak of smallpox in American military personnel in Japan by Agerty (*New England J. Med.* **237**:305 [Aug. 28] 1947) relates that penicillin was used in amounts varying from 160,000 to 240,000 units a day. No obvious effect on the course of the disease followed penicillin therapy. If the eruption of the skin is secondarily infected with hemolytic streptococci or Staphylococcus aureus, penicillin might control the infection. In brief, penicillin may be useful if a secondary infection of the cutaneous lesions is present but has no influence on the course of smallpox itself.

TINNITUS

To the Editor:—A patient aged 48 has had unilateral hearing since birth. Subsequent to a surgical procedure tinnitus developed and has persisted now for fourteen months. The hearing loss is 15 decibels. Is the nature of the pathologic process known? Is there any worth while form of treatment? Is there a chance that the tinnitus may stop? What is the prognosis for further loss of hearing?

M.D., Connecticut.

ANSWER.—A diagnosis of the type or cause of the hearing loss cannot be made without a complete otologic study, including inspection of tympanic membranes and eustachian tubes and audiometric and tuning fork tests. Treatment of tinnitus is exceedingly unsatisfactory. Nothing can be done unless the tinnitus is due to reversible pathologic changes in the ear, such as occlusion of the eustachian tube.

INNERVATION TRAPEZII

To the Editor:—While sitting behind a patient, if one examines his upper trapezii by pinching or squeezing them between the thumb and index finger of each hand one often observes: (1) a sort of reflex contraction of superficial tissues toward the "pinched" side, so that the nuchal septum is deviated toward that side; (2) the formation of a lump in the superficial tissues over the area examined, sometimes accompanied by crepitation—a sort of contraction of the subcutaneous tissues perpendicular to the muscle and directly under one's fingers. Have these been described before? Please explain and give references.

S. Arana-Soto, M.D., San Juan, Puerto Rico.

ANSWER.—The innervation of the trapezii muscles has been studied in detail in various animals, including monkeys, by K. B. Corbin and Frank Harrison (Proprioceptive Components of Cranial Nerves: The Spinal Accessory Nerve, *J. Comp. Neurol.* **69**:315, 1938; Sensory Innervation of Spinal Accessory and Tongue Musculature in Rhesus Monkey, *Brain* **62**:191, 1939). They found that the ventral rami of the second, third and fourth cervical nerves contribute sensory fibers to the trapezii muscles, a few from the second, more from the third and all of those from the fourth cervical. These muscles are supplied with proprioceptive fibers whose cells are situated in the dorsal root ganglions. The fibers pass peripherally over the respective cervical ventral rami, finally anastomosing with the accessory nerves before entering the muscles. The authors expressed the belief that it is reasonable to conclude that a similar condition obtains in man.

The phenomena you have observed probably are due to these sensory nerves reflexly stimulating the muscles. Francis Marion Pottenger ("Symptoms of Visceral Disease," ed. 6, St. Louis, C. V. Mosby Company, 1944) discusses various reflexes and trophic changes in the trapezii region, as well as those of the other accessory muscles set in operation by pulmonary diseases and conditions through the upper cervical nerves. He states that the visceromotor, viscerosensory and viscerotrophic reflexes which arise from stimuli originating in the lungs seem to manifest themselves throughout most of the cervical segments but are more pronounced in the third and fourth. They appear as motor and sensory changes in the tissues supplied by the cervical spinal nerves and as trophic changes if the disease becomes chronic. For example, in recent disease of the upper part of the lung the stimuli result in almost constant contraction of the accessory muscles. At first the muscles may sometimes appear enlarged; at other times they present increased prominence due to shortening through contraction. On palpation these muscles feel hard and rigid. However, provided that the stimulation in the lung continues, in due time atrophy occurs in the muscles.

Apparently the signs you have observed are the result of direct stimulation of the sensory nerves of the muscle, which reflexly causes contraction of the part of the muscle involved so as to deviate the nuchal septum to that side and in a similar manner results in reflex changes of the superficial tissues.

VITAMIN E

To the Editor:—Is vitamin E in 100 mg. doses four times a day of value in the treatment of coronary disease?

M.D., Kansas.

ANSWER.—Two years ago vitamin E was recommended by two Canadian physicians as useful in the treatment of heart disease from various causes, including rheumatic, coronary and hypertensive, as well as of congestive heart failure. Since then there has been no carefully controlled clinical series reported, although various clinics have tried this material. Consensus was well expressed at a panel discussion on cardiac therapy at the meeting of the American Medical Association in Atlantic City, N. J., in June 1947, as follows: "Vitamin E is of no value in coronary heart disease, hypertension or rheumatic heart disease. The original claim that it is of benefit can be attributed to ceremonial therapy."

SYRUP OF IPECAC

To the Editor:—Please discuss use of syrup of ipecac in paroxysmal auricular tachycardia. What is the dosage? How quickly does it work and how long does the effect last?

M.D., New York.

ANSWER.—Syrup of ipecac should be reserved for obstinate and severe cases of paroxysmal auricular tachycardia, preferably proved by electrocardiogram as the ipecac produces such disagreeable symptoms. Vomiting is induced as the result of a vagal effect, which is the mechanism responsible for the control of the paroxysms. Dosage of 7.5 to 15 cc. (2 to 4 drachms) is most effective. The effect starts fifteen to thirty minutes after administration and lasts for about half an hour.

DERMATITIS OF EXTERNAL AUDITORY CANAL

To the Editor:—About five years ago the wax in my ears became more abundant and inspissated, resulting in frequent occlusion of the external auditory canal. Two years later itching in the outer end of the canal began, and occasionally acute exacerbations occurred with cellulitis and enlargement of lymph nodes. Eighteen months ago after swimming in a pool at a New York hotel an infection from Aspergillus occurred. This was apparently relieved by the application of "cresatin." Itching and cellulitis was believed to be due to seborrheic dermatitis, as I have pronounced infection of the scalp. Apparently Aspergillus infection did not recur. Recently another fungous infection occluded both ears completely in a matter of two or three days (swimming again!). "Cresatin" was again successfully used. If the cellulitis of the external auditory canals is untreated it recurs frequently and during attacks there drains from the canals serum which sometimes has the odor of unwashed feet. "Monarden" (a salicylic acid, benzoic acid chloromercuri carvacrol preparation, Smith-Dorsey), "progmator" (a modified coal tar preparation, with sulfur and salicylic acid, Smith, Kline and French) and other preparations have been used to keep the dermatitis and cellulitis in abeyance. Recently a fungicide containing, among other things, salicylic acid and iodine in an oil base has been used on the advice of a dermatologist. Now he wants to use roentgen radiation and states that my trouble is probably caused by a fungus. Some dermatologists are opposed to the use of roentgen therapy for dermatitis. What should I do? So far nothing seems to have been curative. Are cultures and smears for fungi accurate (when negative) for ruling out a diagnosis?

M.D., California.

ANSWER.—Before any treatment is instituted, the cause of the condition should be ascertained. Repeated cultures and subcultures on Sabouraud's medium may establish a fungous origin. Monilia are often the cause of dermatitis in the external auditory canal. If fungi are found to be the cause, then fungicides are indicated. Some of the newer ones are "salinidol" (contains salicylanilide 5 per cent and "carbowax" 95 per cent: Doak Co., Inc.), "salicylanilide phemerol cream" (Parke, Davis & Company), "desenex" (zincundecate, Wallace & Tiernan Products, Inc.) and "decupryl" (a preparation of undecylenic acid and copper undecylenate, Crookes Laboratories).

If fungus cannot be discovered, then an otologist should examine the canal and tympanum for chronic granulations. If found, these should be appropriately treated. If neither fungi nor chronic granulations are the cause of the condition, then the treatment should be for chronic eczema, such as has already been used to control the attacks. Recurrences may be prevented by refraining from scratching or touching the ears and by treating seborrhea capitis, if present. Roentgen therapy in filtered fractional doses given by a skilled dermatologist may be of value.

BODY ODOR

To the Editor:—An unmarried woman aged 24, complains of a "coal gas" odor about her which she maintains is most persistent while she is engaged in her employment as a bank teller. I find nothing relative to this condition, and she is now under my care for acne. I am trying to rule out any organic basis for her complaints. I have not detected this odor about her, but she states that her co-workers have complained to her and she is afraid of losing her job. All examinations, including an ear, nose and throat examination by a specialist, are negative. She states that this condition has persisted for the last five years.

M.D., Illinois.

ANSWER.—Could it be that a sulfur preparation which this woman is using for her acne is responsible for the odor? If not, one must consider those conditions which are usually credited with causing body odor such as: gas escaping from the bowel without the knowledge of the person; decomposition of sweat, sebum or urine on the skin or clothing; body discharge, as from the ears or vagina, or hyperhidrosis. It is said that certain foods can produce odors, particularly spices like garlic. Nervous influences, especially in hysterical persons, are said to emanate body odors. Occasionally an odor is transferred to the clothing from that of another member of the family whose clothing has been permeated by an odor from material used in an occupation. Finally, in some persons the odor is entirely in the imagination—an obsession or phobia much like acarophobia.

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